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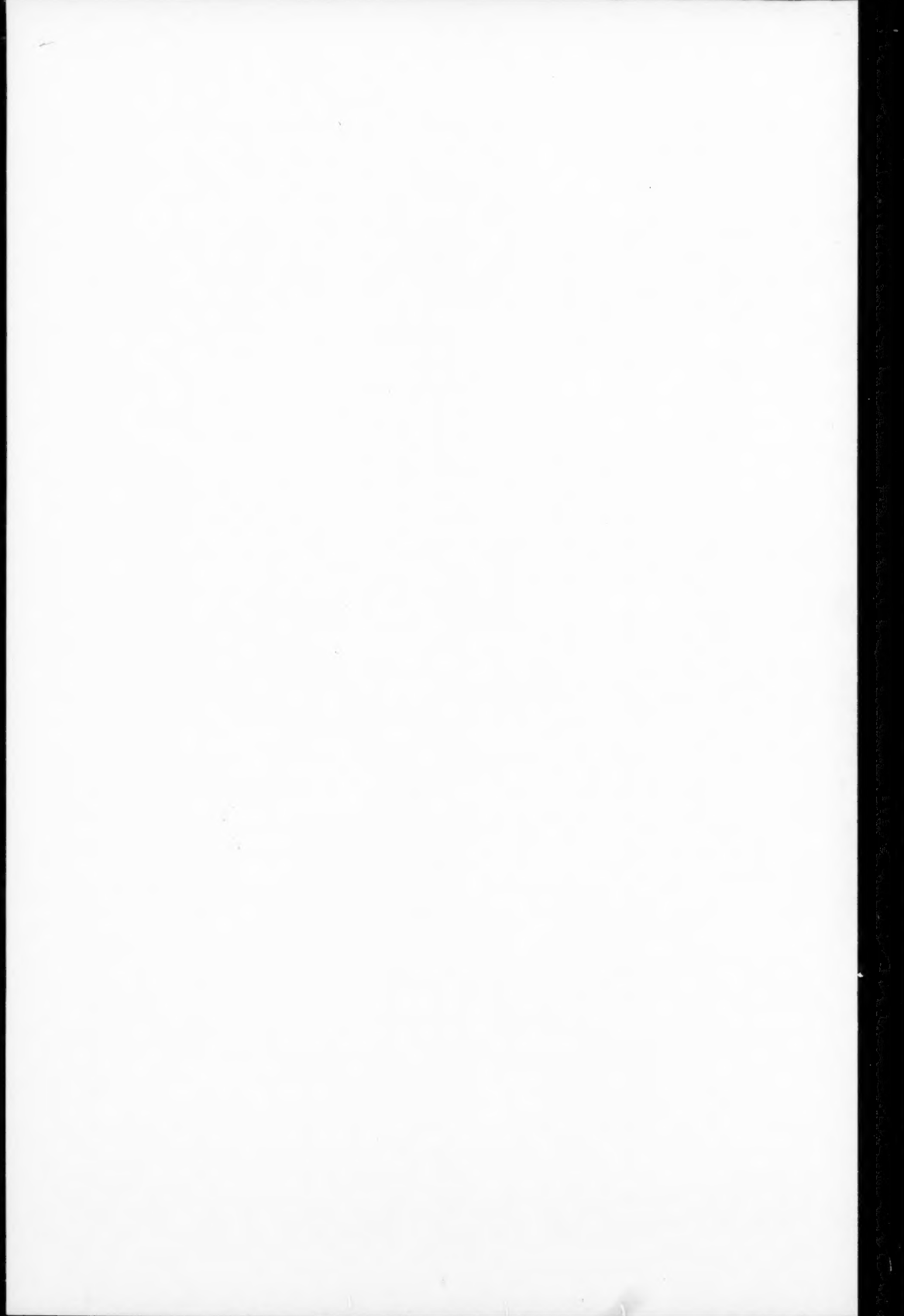
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IN THIS ISSUE

DATA on weight, skeletal size, and period of gestation of neonates of obese women included in an experimental investigation on effects of nutrient supplements during pregnancy which was conducted at Pennsylvania Hospital in Philadelphia from 1947 to 1952 are presented in an article by Dorothy G. Wiehl and Winslow T. Tompkins, M.D. entitled "Size of Babies of Obese Mothers Receiving Nutrient Supplements." It is shown that women who are obese at the beginning of pregnancy tend to have heavier and longer babies than women who are of approximately normal weight. No correlation is found between prenatal gain in weight by the obese mothers and the size of their babies.

The obese women whose diets were supplemented with a protein concentrate had fewer babies of less than thirty-eight weeks gestation and less than 6.0 lbs. at birth than the women who received a multiple vitamin supplement or no supplement. If both the protein concentrate and vitamins were taken during pregnancy, weight at birth relative to skeletal size is increased somewhat and suggests better general development of the baby.

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The article "Medical Care for Acute Respiratory Illness in Two Communities in New York State" by Jane Coulter Mertz, presents data on the amount of medical care received by males and females at specific ages for acute respiratory illness.

Of the total illnesses reported during the three years of the study, 17 per cent received medical care. This medical care was centered upon young persons. The nature of the illness,

the extent of disability, and family attitude toward illness were believed to have an influence on the amount of medical care received.

• • •

This issue contains the twenty-third installment of a series of analytical reports bearing the general title *Social and Psychological Factors Affecting Fertility*. This article, "Economic Tension and Social Mobility in Relation to Fertility Planning and Size of Planned Family," by Ruth Riemer and Clyde V. Kiser, is concerned with three aspects of social mobility: (a) the subjective, or degree of "economic tension," (b) changes in husband's earnings since marriage, and (c) changes in the occupational class of the husband. Being concerned primarily with *intra-generational* social mobility in relation to fertility behavior, this article appropriately follows the preceding one in the series which was devoted to *intergenerational* (father-son) social mobility.

SIZE OF BABIES OF OBESE MOTHERS RECEIVING NUTRIENT SUPPLEMENTS*

DOROTHY G. WIEHL AND WINSLOW T. TOMPKINS, M.D.¹

THE weight and size at birth of babies born to obese mothers is of clinical importance because the overweight patient has an increased likelihood of a long labor and difficult delivery which may be complicated further by a large baby. Consequently, limitation of fetal growth frequently is attempted through severe restriction of prenatal weight gain. Implicit in such a procedure is the belief that prenatal weight gain has a significant effect on the size of the baby and that the low intake of food required to restrict weight gain has no unfavorable effects on the mother or her baby.

Records of obese patients who attended the Nutrition Research Clinic at the Philadelphia Lying-In Hospital from 1947 through 1952, afford data relevant to the problem of birth size and its relation to prenatal weight gain and also on potential benefits to the patient and her baby of a high level of intake of essential nutrients.

The population and procedures of the Nutrition Research Clinic will be described briefly.

All prenatal patients registering at the Philadelphia Lying-In Hospital were referred to the Nutrition Research Clinic if estimated gestation was not more than sixteen weeks, if the patient was married, and if there was no indication of serious chronic disease or syphilis,² unless the patient refused to attend clinic in the afternoon. With these exceptions, the patients are

* From the Pennsylvania Hospital (Philadelphia Lying-In Hospital), Nutrition Research Clinic.

The Nutrition Research Clinic is supported by grants-in-aid from the Milbank Memorial Fund, the Williams-Waterman Fund, the National Vitamin Foundation, the Nutrition Foundation, the Upjohn Company, E. R. Squibb & Sons, and Mead Johnson & Company.

¹ The Milbank Memorial Fund and The Pennsylvania Hospital, respectively.

² Patients with chronic disease or syphilis referred to the Nutrition Research Clinic were carried but have been excluded from tabulations in this report. Chronic diseases excluded are essential hypertension, chronic heart classified II-a or higher, chronic nephritis, and chronic pyelitis.

an unselected series from the ward service of the hospital.

Patients registered in the Nutrition Research Clinic were assigned seriatim to one of four study groups by the statistical staff in a manner which would maintain comparability among the four groups for color, age, and grvida of patients. The four primary study groups are as follows:

- A. Control group, no supplement
- B. Vitamin supplemented group³
- C. Protein supplemented group³
- D. Vitamin and protein supplemented group

Patients in all groups received throughout their pregnancies the same prenatal care and management. Diet instructions were accomplished by the nutritionist and supported by supervision and direction of the obstetric staff of the clinic. The diet used in the research study was marginal and designed to produce a base-line against which supplementation could be expected to show a differential, if such a differential existed.

It must be pointed out that the maintenance of patients on a marginal dietary intake, to which known amounts of supplements are added, is specifically for the purpose of evaluating the needs for the specific nutrients added. It is not intended to infer that this procedure represents a desirable method of obtaining an optimum nutritional status.

COMPARISON OF OBESE PATIENTS AND STANDARD WEIGHT PATIENTS

Obese patients in the Clinic differed from patients whose weight at the beginning of pregnancy was less than 5 per cent above or below the standard or "ideal" weight⁴ with respect

³ The nutrient supplements used in this study are: Therapeutic poly-vitamin concentrate (Upjohn's Zymacaps and E. R. Squibb & Sons' Theragran) three capsules per day; Protein concentrate (Mead Johnson & Company's Protenum), to furnish 50 gms. of protein daily if taken as advised.

⁴ Patients were carefully questioned in the clinic as to their immediate pre-gravid weight and were measured for height without shoes. The standard weight for a specific height and age used is from the Report of the Medico-Actuarial Investigation 1912-1914 up to age 25 years. The average weight at 25 years is extended to older ages and the value used is the mid-point of the weight range

(Continued on page 127)

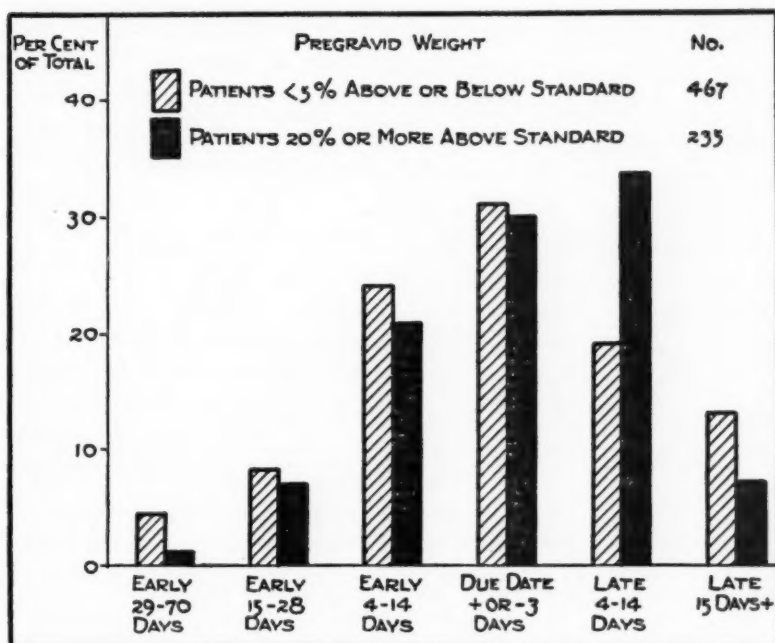


Fig. 1. Percentages of patients delivered within various periods relative to expected time of delivery among patients who were obese and whose weight was approximately normal at the beginning of pregnancy.

to weight and size of their babies and also with respect to length of gestation.

Length of Gestation. There is a marked tendency for more of the obese patients than of normal weight patients to deliver later than the estimated time. In Figure 1, the time of delivery relative to the date due for 235 patients 20 per cent or more overweight is compared with that for 467 patients whose weight at the beginning of pregnancy differed from the standard weight by less than 5 per cent. Although the percentage for delivery within three days of the date due is nearly the same for the two groups, a much larger percentage of obese

for women of medium frame published by the Metropolitan Life Insurance Company. One inch was subtracted from heights in published tables to adjust for height without shoes. Although reported weights undoubtedly may be in error a few pounds and height alone is not always an adequate criterion for "ideal" weight, comparisons of groups of patients differing in pregravid weight status should give valid results.

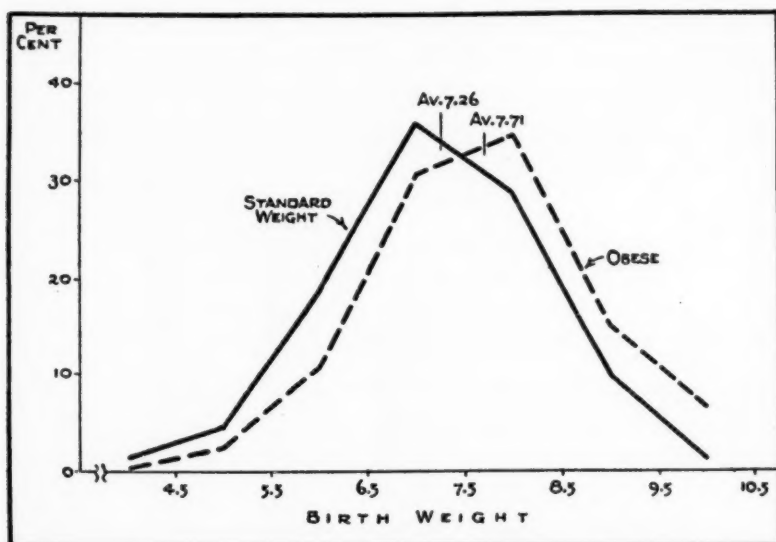


Fig. 2. Percentage distributions for birth weights of babies born to obese patients and to those of normal weight at beginning of pregnancy.

patients delivered late and a smaller percentage delivered early than for patients of standard weight.

The difference in these two distributions of patients by time of delivery is highly significant statistically.⁵ It may be assumed that errors in reporting date of last menstrual period are approximately equal in the two groups. Obesity, therefore, apparently has a definite effect on delaying the onset of labor.

Birth Weight. The effect of weight status of the patient at the beginning of pregnancy on the weight of her baby is shown in Figure 2. Data are for single births of at least twenty-eight weeks of gestation.

Patients who were obese had heavier babies than those whose weight differed from the standard weight by less than 5 per cent. On the average, the difference is about 7 ounces (0.45 lbs.). There is a striking difference in the percentage distributions of birth weights of the babies of obese and stand-

⁵ The chi square test of the two distributions gives the following: $X^2 = 24.176$, Degree of Freedom 5, $P < .001$.

ard weight patients, as shown in Figure 2. For the obese patients, 21 per cent of the babies weighed more than 8.5 lbs. compared with 11 per cent for the patients of standard weight. Also, only 3 per cent of the infants of obese patients weighed 5.5 lbs. or less compared with 5.8 per cent for normal weight patients.

The greater weight at birth of babies of obese patients than of the normal weight patients is not due to the greater proportion of late deliveries among obese patients. If the comparison is restricted to babies delivered within seven days of the estimated time for delivery, the average birth weight for 131 babies of obese patients is 7.91 lbs. and for 249 babies of normal weight patients is 7.45 lbs., and the difference is the same as for the total groups, i.e., 0.46 lbs.

Length of Babies. The greater weight at birth of infants of obese patients is associated with a statistically significant difference in total length between infants of obese patients and those of patients whose weight differed from the standard weight less than 5 per cent.

Most of the babies were measured one to five days after birth and the average crown-sole lengths are shown in Table 1. Infants of obese patients were nearly one centimeter longer than those of the patients of standard weight.

Thus, the greater weight at birth of the babies of obese patients is due to their greater length and is not the result of greater mass of soft tissue relative to skeletal size.

Table 1. Average crown-sole length at one to six days after birth for babies of obese and standard-weight patients.

WEIGHT STATUS AT BEGINNING OF PREGNANCY	NUMBER OF BABIES MEASURED	AVERAGE CMS.	STANDARD ERROR OF AVERAGE
Above Standard Weight 20 Per Cent or More	184	50.65	0.152
Standard Weight + or - Less Than 5 Per Cent	386	49.72	0.109
Difference	0.93 \pm 0.190 P < .001		

In summary, it seems clear that large, heavy babies are definitely characteristic of obese women. This tendency for big babies, though not the result of delayed onset of labor, frequently is accompanied by delayed labor. These facts, together with the long labor and inertia that are well-known complications in the obese patient, emphasize a need for evidence concerning the relation of prenatal weight gain and size of baby.

PRENATAL GAIN IN WEIGHT AND SIZE OF BABY

Association between prenatal weight gain and the weight and length of the infant is found to be very slight for this series of obese patients.

Coefficients of correlation are shown in Table 2 for prenatal weight gain and birth weight, and for gain and crown-sole length. For these correlations, patients were selected who had no definite prenatal complications and had no apparent edema or only slight edema of the ankles at one or two visits. Also,

Table 2. Correlation of prenatal weight gain of "normal" obese patients with birth weight and with crown-sole length of babies.

VARIATES CORRELATED	NUM- BER	COEF. OF CORRELATION	SIGNIFICANCE P
<i>Birth Weight Correlated With:</i>			
Total Weight Gain from Minimum Before 17 Weeks to Maximum Last Month	144	+ .280	< .01
Gain Minimum to Maximum <i>Minus</i> Birth Weight	144	+ .153	> .05
Gain from Pregravid Weight to Maximum Last Month <i>Minus</i> Birth Weight	144	+ .184	.02-.05
Male Babies	79	+ .230	.02-.05
Female Babies	65	+ .127	> .30
<i>Crown-Sole Length Correlated With:</i>			
Gain from Minimum Weight Before 17 Weeks to Maximum <i>Minus</i> Birth Weight	114	+ .157	.10
Gain from Pregravid Weight to Maximum <i>Minus</i> Birth Weight	114	+ .122	> .10
Male Babies	64	+ .177	> .10
Female Babies	50	+ .007	> .90

only patients weighed in the clinic within three weeks of delivery are included. Weight gain is computed for two periods: (1) gain from the reported pregravid weight to the maximum weight in the last month, and (2) gain from the first visit to clinic or the minimum weight in the first sixteen weeks of gestation to the maximum weight. Errors in the pregravid weight may increase or reduce the true net gain, and an early weight loss, actual or exaggerated by error in reporting, will be deducted from the gain later in pregnancy, when gain is computed from pregravid weight. In addition, the observed maximum gain represents the period for which the physician has an opportunity to influence factors which affect the patient's prenatal gain in weight.

Since birth weight is a part of the patient's weight gain, weight of the fetus will affect the patient's gain and this association may produce a positive correlation which does not have any real meaning with respect to the influence of prenatal gain on birth weight. In order to avoid this "spurious" correlation, birth weight has been subtracted from the total gain and the remainder correlated with birth weight.

Most of the coefficients of correlation in Table 2 are less than 0.20. In no case is the relationship of a level that would give any support to a concept that size or weight of the baby can be predicted by weight gain or can be kept at a minimum by limiting weight gain. A similar lack of correlation between weight gain and birth weight was reported by Beilly and Kurland (1) who obtained an r of 0.1849 for the correlation of weight gain of 979 patients with birth weight. These authors also found that the babies of obese patients were heavier than average regardless of the amount of prenatal gain.

EFFECTS OF SUPPLEMENTS ON DELIVERY TIME AND SIZE OF BABY

The influence of an improved nutritional status on the obese patients as a result of vitamin therapy, supplemental protein, or both, has been examined with reference to delivery relative

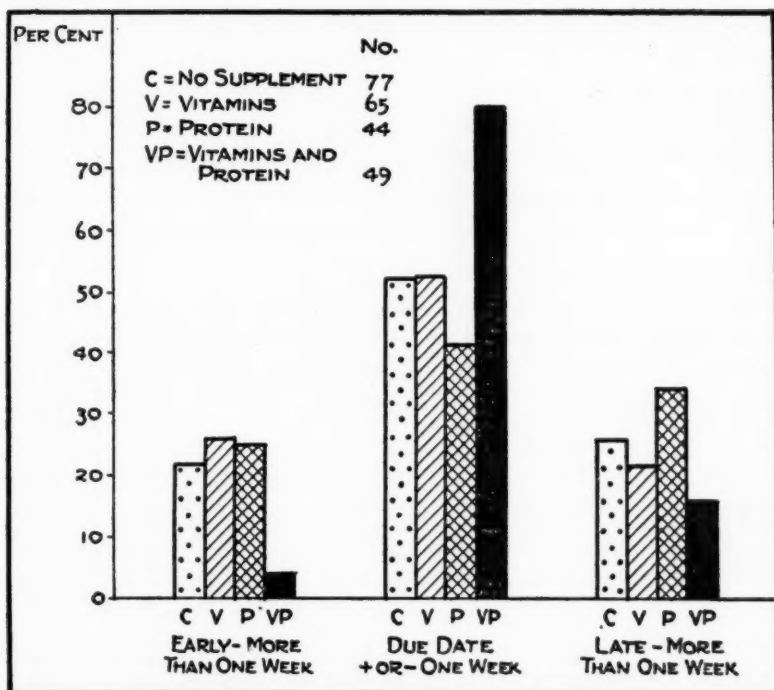


Fig. 3. Percentages of obese patients who received different nutrient supplements that delivered within one week of expected time or more than one week early or late.

to expected time, and the size and development of the babies.

Delivery Time. Comparison of the four study groups⁶ with respect to time of delivery is shown in Figure 3.

The very sharp difference in the time of delivery for the patients who received both vitamin and protein supplementation is very evident. Eighty per cent of the patients in this group delivered within one week of the expected date of delivery compared with 41 to 52 per cent of patients in the other three groups. The experience of the vitamin-protein supplemented patients is significantly different from the total obese

⁶ Percentage distributions of patients in each of the Study Groups by color, age, and para are given in Appendix Table 1. The groups are quite comparable in most respects; the greatest difference is found for the group given vitamins only in which a smaller percentage of patients were under 25 years of age and also a smaller percentage were having a first baby.

group ($P .02-.05$) and none of the other three groups differed significantly.

However, it is important to note that the relatively high percentage of vitamin-protein supplemented patients that delivered within one week of the expected delivery time is due chiefly to a much smaller percentage of early deliveries among this group. Only 4 per cent of the vitamin-protein supplemented patients delivered more than one week early compared with 22 to 26 per cent in the other groups. Although the percentage of late deliveries was somewhat smaller, 16 per cent among vitamin-protein supplemented patients compared with 22 to 34 per cent for other groups, the difference is not statistically significant.

Thus the evidence strongly suggests that when high vitamin therapy was taken and the diet was supplemented with a high biologic protein, there was an improvement in the nutritional status of the obese patient which was reflected in the duration of gestation. Protein alone or vitamin therapy alone did not modify the duration of gestation.

Prematurity. Since the percentage of patients delivered early is smaller for those who received both protein and vitamins, it would be expected that this group would have fewer babies classified as premature on the basis of birth weight of 5.5 lbs. or less. There was a total of only seven premature births by the conventional standard of 5.5 lbs. or less, and these were distributed among the study groups as follows: three in the control group; two in the vitamin supplemented group; none in the protein supplemented group; and two in the vitamin and protein supplemented group. All of these babies were less than thirty-eight weeks gestation except one of the two in the vitamin-protein group which was born at term to a patient having a very extensively calcified placenta. There is no statistical significance to the distribution of these prematures among the four study groups. However, it is suggestive that if the one small term birth is excluded there were five prematures, 3.5 per cent, among those in the control and

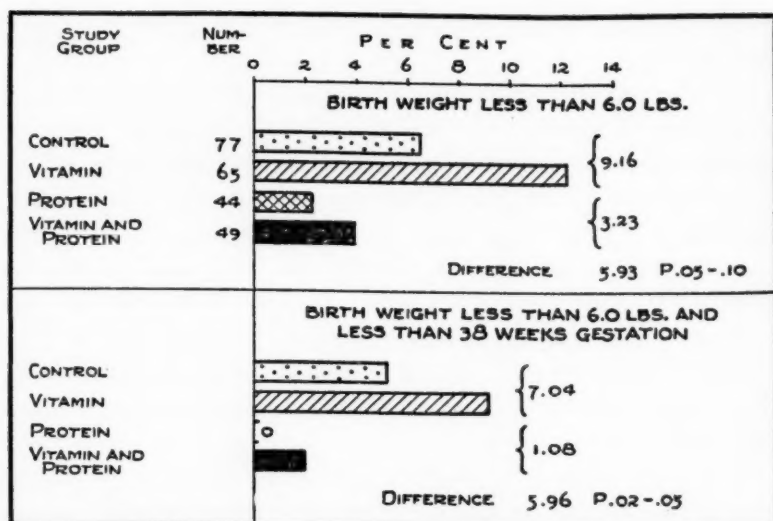


Fig. 4. Incidence of births of less than 6.0 lbs. of any estimated gestation and of less than 38 weeks gestation among obese patients who received different nutrient supplements.

vitamin supplemented groups and only one, 1.1 per cent, among those in the two protein supplemented groups.

Since infants of obese patients are heavier on the average than those of normal weight patients, the probability is high that those weighing slightly more than 5.5 lbs. are as premature or immature as lighter babies born to patients of normal weight. Therefore, an arbitrary criterion of less than 6.0 lbs. was taken for prematurity, which increases the usual criterion of 5.5 lbs. or less by an amount equal to the difference in the average weights at birth for infants of obese patients and normal weight patients. By the criterion of less than 6.0 lbs. there was a total of sixteen premature babies among the obese patients (6.8 per cent), and eleven (4.7 per cent) were also of less than thirty-eight weeks gestation. The frequency of premature infants by this weight standard among patients in each of the four study groups is shown in Figure 4.

It is evident in Figure 4 that high vitamin therapy did not prevent babies of less than 6.0 lbs. among obese patients. The

rate is higher than for patients who received no supplements, but the difference is not statistically significant. There is a marked decrease, however, in the frequency of such small babies for the patients who took protein or protein and vitamin supplements. As there is no significant difference in the rates for the two groups of patients who received protein supplements, these have been combined and compared with patients in the control group and vitamin therapy group. Although the incidence of babies under 6.0 lbs. is much lower for patients who took protein supplements than for the others, the difference is not statistically significant when weight alone is considered. When both weight and gestation are used, the difference is increased relatively and is moderately significant.

These data support a general conclusion that supplementation of the usual diets of these obese patients with high biological protein resulted in a reduced frequency of very small babies which were very probably premature.

Birth Weight. The average birth weight for all babies in each of the study groups is shown in Table 3. It is clear that a statistically significant difference in the birth weights did not occur. This is important clinically in that it indicates that an improvement in the status of these obese patients through supplementation did not increase the hazard of a heavier baby as compared with non-supplemented patients.

Skeletal Size. The average length and average chest circumference of babies in each of the study groups is given in Table 4. The differences among the groups are small both for

Table 3. Birth weight in relation to type of supplement given to patients 20 per cent or more overweight at beginning of pregnancy.

TYPE OF SUPPLEMENT	NUMBER OF BABIES	AVERAGE BIRTH WEIGHT	ST. ERROR OF AVERAGE
TOTAL	234	7.73	0.074
No Supplement ¹	76	7.77	0.139
Vitamins	65	7.57	0.133
Protein	44	7.58	0.139
Vit. + Protein	49	7.99	0.170

¹ Excludes one infant weighing 3.2 lbs. at birth.

SUPPLEMENT GROUP	NUMBER MEASURED	LENGTH-CMS.		CHEST-CMS.	
		Average	St. Error	Average	St. Error
TOTAL ¹	184	50.65	0.152	32.95	0.127
No Supplement	60	50.48	0.246	33.01	0.216
Vitamins	51	50.41	0.315	32.81	0.282
Protein	36	50.58	0.344	32.85	0.266
Vit. + Protein	37	51.35	0.322	33.16	0.244

¹ Babies weighing less than 5.5 lbs. at birth are not included since very few were measured.

Table 4. Crown-sole length and chest circumference of babies of obese patients in relation to type of supplement.

crown-sole length and chest circumference. However, the crown-sole length of babies of the patients who took both vitamins and protein supplements is nearly one centimeter greater than the average for each of the other three groups. This difference is moderately significant ($P .01-.05$) when the three groups are combined.

This greater length of babies of patients taking vitamin and protein supplements is due chiefly to the very small percentage of patients in this group who were delivered more than one week before the estimated time of delivery. The average length of babies delivered not more than one week early or late is 51.31 cms. for the vitamin and protein group compared

Table 5. Difference of actual birth weight from expected weight estimated from length and chest circumference in relation to type of supplement given to patients 20 per cent or more overweight at beginning of pregnancy.

TYPE OF SUPPLEMENT	NUMBER	AVERAGE DIFFERENCE IN POUNDS	STANDARD ERROR OF AVERAGE
ALL BABIES	184	+.033	.0386
No Supplement	60	+.075	.0735
Vitamins	51	-.025	.0638
Protein	36	-.108	.0782
Vit. + Protein	37	+.184	.0915

Analysis of variance for 4 groups, 3 degrees of freedom: F value is 2.28 and $P > .05$

Analysis of variance for vitamin + protein group and all others, 1 degree of freedom: F value is 3.89, and P is .05

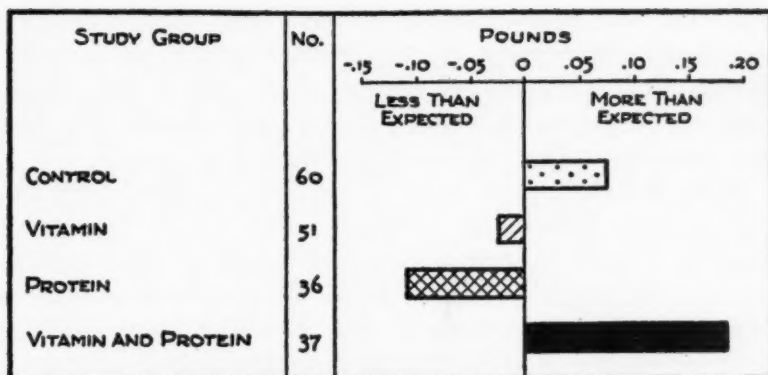


Fig. 5. Average differences between birth weight and a predicted weight for length and chest circumference for babies of obese patients who received different nutrient supplements.

with 50.87 cms. for the other three groups. This difference is not significant.

Birth Weight Relative to Body Build. Further evidence as to infant status is available when the birth weight of the baby is related to its body build.

The weight of the baby at birth is a function of its skeletal build and amount of soft tissue. It is reasonable to postulate that the nutritional status of the baby may be judged by its weight in relation to body size, just as is done throughout infancy and childhood. Using total length and chest circumference, a predicted weight was calculated for each baby⁷ and the difference between this expected weight and the birth weight was determined. A minus difference indicated the baby was less than the expected weight and a plus difference indicated greater than the expected weight. These differences are shown in Table 5 and Figure 5.

⁷ These calculations were made from multiple regression formulae as follows: (L = crown-sole length and Ch. = chest circumference.)

Whites, male and female:

Expected weight = .236 cms. L + .286 cms. Ch. -13.59

Colored, male and female:

Expected weight = .133 cms. L + .420 cms. Ch. -12.68

The formulae are based on data for babies born to patients of any pregravid weight status that were rated excellent or good in the first week of life by the pediatricians for the Nutrition Research Clinic.

Babies born to patients who received both vitamin and protein supplements were, on the average, about three ounces heavier than the predicted weight. The other groups ranged from about one ounce heavier (the control group) to a little less than two ounces lighter (the protein only group).

Individual differences from the expected weight varied over a wide range, from minus 1.4 lbs. to a plus 1.5 lbs. and are influenced greatly by errors in measurement of chest circumference and length as well as actual differences in amount of soft tissue. This wide variation for individual differences from expected weight applied to all study groups and an analysis of statistical significance using four groups gives a probability greater than 5 per cent for the observed variation in averages of the groups. However, if the vitamin and protein supplemented group is compared with the total experience of the other three groups, statistical significance is borderline at 5 per cent probability.

This finding for the metabolic efficiency of mothers who received both vitamin and protein supplements is consistent with that shown for expected time of delivery relative to date due.

That the babies of patients who received only protein had the poorest record for weight relative to body size may appear somewhat inconsistent with the previous finding that only one baby in this group weighed less than 6 lbs. However, examination of the individual records of the patients taking protein supplement only shows that the poor weight status of babies of a few patients, who took less than half of the intended amount of the protein supplement, was responsible for the low average weight for the entire group. Babies of patients who took more than half of the protein supplement had an average deviation from the expected weight of approximately zero (+.015). Thus, although small immature babies did not occur in this group, the general developmental status was not equal to that of babies whose mothers received both vitamins and protein.

SUMMARY

A comparison of 235 obese patients (20 per cent or more above standard weight for height) with 467 patients less than 5 per cent above or below standard weight at the beginning of pregnancy showed (1) a much larger percentage of obese patients delivered late and a smaller percentage delivered early than among normal weight patients; (2) babies of obese patients were, on the average, about seven ounces heavier, and nearly one centimeter longer.

Correlation of prenatal weight gain with birth weight and with crown-sole length at birth was very low and gives no indication that maternal weight gain has an important effect on size of baby.

Obese patients who supplemented their diets with high vitamin capsules and a protein concentrate showed benefits as compared with obese patients who had no nutrient supplement or took only vitamins or only protein with respect to several criteria:

1. A significantly larger percentage delivered within one week of the expected time of delivery;
2. The average crown-sole length of babies was greater as a result of fewer premature deliveries;
3. The birth weight relative to length and chest circumference indicated better development.

Obese patients who received the protein supplement and vitamins or only protein had fewer "premature" babies on the basis of birth weight less than 6.0 lbs. and less than thirty-eight weeks of gestation.

ACKNOWLEDGMENTS

Acknowledgment is made Josephine Perlingiero Randall, M.D. and Alexander Randall IV, M.D., pediatric fellows to the Nutrition Research Clinic, who evaluated and measured almost all of the babies.

REFERENCES

1. Beilly, Jacob S. and Kurland, Irving I.: Relationships of Maternal Weight Gain and Weight of Newborn Infants. *American Journal of Obstetrics and Gynecology*, August, 1945, Vol. 50, pp. 202-206.

Appendix Table 1. Color, age, and para of obese women in each of the four study groups.

CLASSIFICATION	NUMBER OF WOMEN IN SPECIFIED GROUP				PER CENT OF TOTAL FOR SPECIFIED GROUP			
	Control	Vit-amin	Prot-ein	Vit. + Prot.	Control	Vit-amin	Prot-ein	Vit. + Prot.
TOTAL	77	65	44	49	100.0	100.0	100.0	100.0
White	53	47	34	36	68.8	72.3	77.3	73.5
Colored	24	18	10	13	31.2	27.7	22.7	26.5
Under 25 Years	30	16	16	18	39.0	24.6	36.4	36.7
25-34	36	41	25	23	46.7	63.1	56.8	46.9
35 Years +	11	8	3	8	14.3	12.3	6.8	16.3
First Birth	31	17	16	18	40.3	26.2	36.4	36.7
Second or Later	46	48	28	31	59.7	73.8	63.6	63.3

MEDICAL CARE FOR ACUTE RESPIRATORY ILLNESS IN TWO COMMUNITIES IN NEW YORK STATE

JANE COULTER MERTZ¹

MORBIDITY studies have shown that the incidence of acute respiratory illness varies by age and sex and also may be influenced by family attitude toward illness (1, 2, 3, 4, 5). A study on disability from respiratory illness showed disability to be characteristic of certain persons and certain families (6). It is of interest to learn whether medical care for acute respiratory illness is influenced by age, sex, or personal attitudes and feelings about how an illness should be cared for.

The study of acute respiratory illness that was conducted in two communities, Pleasantville and Mt. Kisco, in Westchester County, New York, from September, 1946 to May, 1949 included records of medical care. The purpose of the present report is to present data on the amount of medical care received by males and females at specific ages for acute respiratory illness.

DATA AND METHOD OF STUDY

The data and method of the study of acute respiratory illness in the two communities in Westchester County, New York, have been fully described in a previous report (5). Briefly, the epidemiological field investigation of acute respiratory illness was based upon the periodic survey of families for the purpose of collection of illness records. On each visit to the family, inquiry was made about acute respiratory illnesses which had occurred among their members during the past four weeks. Inquiry was also made as to whether the reported illnesses were medically attended.

For all medically attended cases of acute respiratory illness a record was made of (1) name of attending physician; (2)

¹ From the Milbank Memorial Fund. This is the twelfth in a series of papers dealing with a study of acute respiratory illness.

number of visits and specific dates of medical calls; and (3) whether the service was rendered at home, at the doctor's office, by telephone only, or in a hospital. The nature of the illness as stated by the family informant was not submitted to the attending physician for confirmation or correction; these data are based upon information given by the family informant.

The population is classified according to the occupational class of the head of household, by sex, and by age. The illnesses are further classified by the nature of the illness and by type of disability.

Occupational Class. Persons in each family were coded according to the occupational class of the head of household.² Persons have been divided into two occupational classes according to the occupational class of the head of household: (1) professional and managerial; and (2) all other occupational classes which include clerical, skilled, semi-skilled, and unskilled workers. Consequently, it is possible to evaluate the influence of occupational class on the incidence of medically-attended cases of acute respiratory illness.

Sex and Age. Morbidity studies have shown that the incidence of acute respiratory illness decreases with age among both males and females and that after the age of 10 years the incidence rate among females exceeds that of males. The data collected in Pleasantville and Mt. Kisco make it possible to study the influence of sex and age on the incidence of medically-attended cases of acute respiratory illness in the two communities.

Nature of the Illness. Acute respiratory illness as reported in this analysis includes head colds or coryza, colds with sore throat, tonsillitis and septic sore throat, colds with chest complications, tracheitis, bronchitis or cough, and influenza. The medically-attended illnesses have been classified according to the part or parts of the respiratory tract which were reported as affected and have been divided into two classes: (1) illnesses

² Coding of occupational class was based upon the Alphabetical Index of Occupations and Industries. United States Department of Commerce, Bureau of the Census, Sixteenth Census of the United States, 1940.

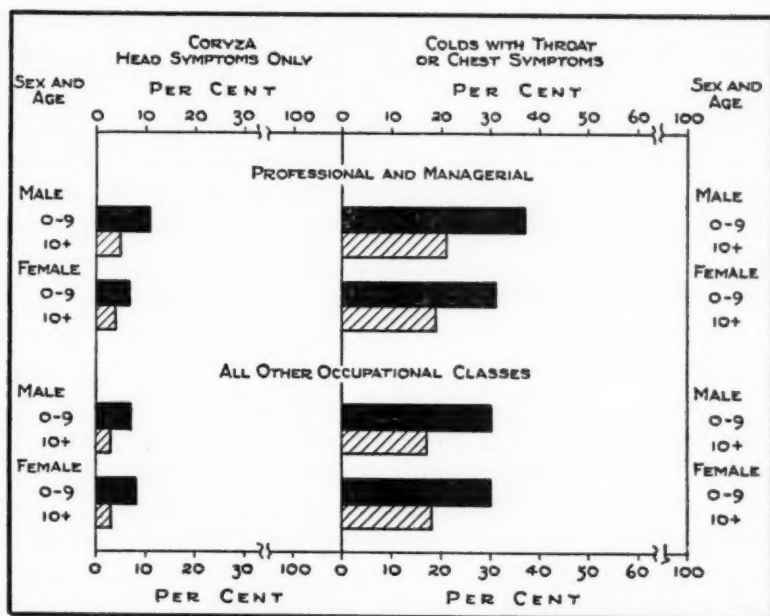


Fig. 1. Proportion of the total head colds (coryza) and of the total colds with throat or chest symptoms that were medically attended. Pleasantville and Mt. Kisco, September to May, 1946-1949.

which affected the head only (coryza), and (2) illnesses which involved the throat or chest.³

Disability. The medically-attended cases of acute respiratory illness were divided into two classes according to the extent of disability: (1) illnesses which were not confined to bed, and (2) illnesses which were confined to bed for one or more days.

FREQUENCY OF MEDICAL CARE

Every illness included a record of any medical care received. Of the total illnesses reported during the three years of the study, 17 per cent received medical care. Ninety-eight per cent of the medical care was rendered by private physicians.

Figure 1 shows for the population in the two occupational

³ The classification "colds with throat or chest symptoms" includes illnesses with throat symptoms only, illnesses with throat symptoms in combination with head and/or chest symptoms, illnesses with chest symptoms only, or illnesses with chest and head symptoms.

Table 1. Proportions of the total head colds and the total throat or chest colds among males and females by age which had medical care, classified by occupational class of head of household and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
	Per Cent					
	NO BED DISABILITY					
<i>Male</i>						
All Ages	6.8	9.1	10.4	5.4	2.7	8.8
0-9		4.9	15.8		3.6	13.3
10+		3.2	7.2		2.0	6.1
<i>Female</i>						
All Ages	7.3	3.5	11.2	5.4	2.8	8.3
0-9		4.3	15.6		4.5	11.9
10+		2.9	9.3		1.9	7.1
	BED DISABILITY					
<i>Male</i>						
All Ages	36.9	43.9	44.9	32.1	14.8	37.7
0-9		19.4	52.6		21.9	45.5
10+		11.3	37.6		8.0	30.8
<i>Female</i>						
All Ages	31.2	35.0	38.2	34.6	15.1	40.0
0-9		14.3	43.7		25.0	48.6
10+		10.6	34.0		9.4	35.6

classes the proportion of the total acute respiratory illnesses that were medically attended.⁴ The data are also shown by sex and age. The left section of Figure 1 gives the data for coryza, colds with head symptoms only, and the right section for colds with throat or chest symptoms. The most striking point brought out by these data is that medical attention was centered upon young persons. This was true for each class of illness, that is, coryza and colds with throat or chest symptoms among males and females in each occupational class. Persons under 10 years of age had from 4 to 6 per cent more medically-attended cases of coryza and from 13 to 16 per cent more medically-attended colds with throat or chest symptoms.

The proportion of the total cases that received medical attention was similar in the two occupational classes. As would be expected, there were more medically-attended colds with throat or chest symptoms than colds with head symptoms only. Only 3 to 11 per cent of the coryza cases received medical care whereas 17 to 37 per cent of the colds with throat or chest symptoms were medically attended.

Table 1 shows the same data as Figure 1 according to type of disability. There was a striking similarity in the proportion of medically-attended cases among males and females in the two occupational classes both for cases not confined to bed and those with bed disability. Children less than 10 years of age had more medically-attended cases in each disability group than did persons aged 10 and over. Medically-attended cases were concentrated among those with the greater degree of disability, that is, cases which were confined to bed. Approximately one-third of these cases were medically attended.

The incidence of all cases and of medically-attended cases of acute respiratory illness is shown in Tables 2 and 3 for persons in families in the professional and managerial occupational class and in the clerical, skilled, semi-skilled, and unskilled oc-

⁴ The numbers upon which these percentages are based are shown in Appendix Tables 1 and 2.

Table 2. Incidence of acute respiratory illness among persons in families in the professional and managerial occupational class, classified by age, sex, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	ALL DIAGNOSES		CORYZA—HEAD SYMPTOMS ONLY		COLDS WITH THROAT OR CHEST SYMPTOMS	
	Total Cases	Medically Attended Cases	Total Cases	Medically Attended Cases	Total Cases	Medically Attended Cases
Rate Per 1,000 Population						
NO BED DISABILITY						
Male All Ages	929.7	63.1	522.5	20.9	407.2	42.2
	1,576.8	143.5	972.5	47.8	604.3	95.7
	715.6	36.5	373.6	12.0	342.0	24.5
Female All Ages	1,143.2	83.1	581.3	20.1	561.9	63.0
	1,631.4	146.6	952.4	41.0	679.0	105.7
	980.7	62.0	457.8	13.2	522.9	48.8
BED DISABILITY						
Male All Ages	584.5	215.9	157.1	23.8	427.4	192.1
	1,139.1	500.0	298.6	58.0	840.6	442.0
	401.0	121.8	110.3	12.5	290.6	109.4
Female All Ages	644.7	200.9	175.5	21.8	469.2	179.1
	1,154.6	404.2	342.1	48.9	812.4	355.4
	474.9	133.2	120.1	12.8	354.9	120.5

Table 3. Incidence of acute respiratory illness among persons in the clerical, skilled, semi-skilled, and unskilled occupational classes combined, classified by age, sex, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	ALL DIAGNOSES		CORYZA—HEAD SYMPTOMS ONLY		COLDS WITH THROAT OR CHEST SYMPTOMS	
	Total Cases	Medically Attended Cases	Total Cases	Medically Attended Cases	Total Cases	Medically Attended Cases
Rate Per 1,000 Population						
NO BED DISABILITY						
<i>Male</i>						
All Ages	690.3	37.6	378.7	10.2	311.6	27.4
0-9	1,255.3	95.7	730.5	26.0	524.8	69.7
10+	530.0	21.1	278.9	5.7	251.1	15.4
<i>Female</i>						
All Ages	889.6	48.1	466.6	12.9	423.0	35.2
0-9	1,253.5	94.1	746.5	33.9	506.9	60.2
10+	793.3	35.9	392.5	7.3	400.8	28.6
BED DISABILITY						
<i>Male</i>						
All Ages	370.9	119.1	90.1	13.3	280.8	105.8
0-9	792.0	313.2	199.8	43.7	592.2	269.5
10+	251.4	64.0	59.0	4.7	192.4	59.3
<i>Female</i>						
All Ages	408.0	141.4	88.5	13.4	319.5	128.0
0-9	682.6	294.9	155.6	38.9	527.0	256.0
10+	335.3	100.7	70.8	6.6	264.5	94.1

SEX AND AGE	NO BED DISABILITY		BED DISABILITY	
	Total Cases	Medically Attended Cases	Total Cases	Medically Attended Cases
	Ratio			
<i>Male</i>				
All Ages	1.35	1.68	1.58	1.81
0-9	1.26	1.50	1.44	1.60
10+	1.35	1.73	1.60	1.90
<i>Female</i>				
All Ages	1.29	1.73	1.58	1.42
0-9	1.30	1.56	1.69	1.37
10+	1.24	1.73	1.42	1.32

Table 4. Ratio of the incidence of acute respiratory illness among persons in families in the professional and managerial occupational class to the incidence among persons in families in the clerical, skilled, semi-skilled, and unskilled occupational classes. Pleasantville and Mt. Kisco, September to May, 1946-1949.

cupational classes, respectively.⁵ A previous report on the study of acute respiratory illness showed that the higher the occupational class the higher was the incidence of acute respiratory illness (5). It was concluded that there was no reason to believe that acute respiratory illness is selective of persons in one particular social class compared with another. Rather, it was suggested that the differences might be due to a subjective factor—family attitude toward illness.

Table 4 shows the ratio of the rates in the professional and managerial class to rates in all other occupational classes combined for all cases and for medically-attended cases of acute respiratory illness. Persons in the professional and managerial class reported from 32 to 90 per cent more medically-attended cases than persons in the other occupational classes although they reported only from 24 to 69 per cent more illness. There is no reason to believe that severe acute respiratory illness is selective of persons in the higher occupational classes. Again, it must be concluded that the differences between the two oc-

⁵ The population upon which these rates are based is shown in Appendix Table 3. Persons are counted in each year that they were observed.

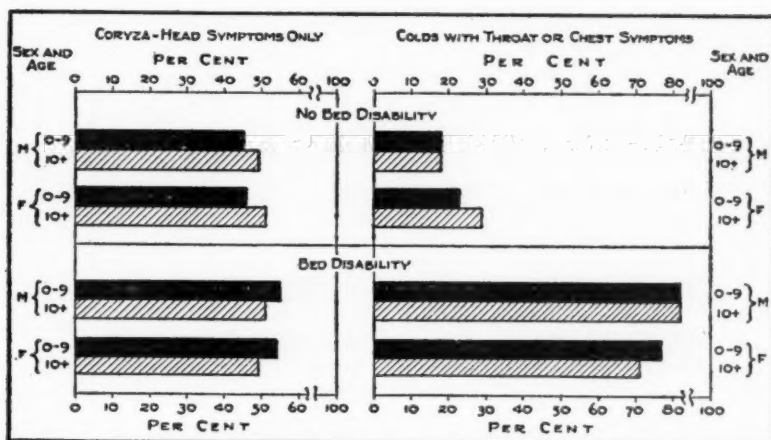


Fig. 2. Proportion of the total medically attended head colds (coryza) and of the total medically attended colds with throat or chest symptoms, classified according to those that had (1) no bed disability, and (2) those that had bed disability. Only persons in families in the professional and managerial class are included in the population. Pleasantville and Mt. Kisco, September to May, 1946-1949.

cupational classes in the incidence of medically-attended cases of acute respiratory illness may be due to family attitude toward illness.

MEDICAL CARE BY TYPE OF DISABILITY

Figure 2 and Appendix Table 4 show for each age group and sex in the professional and managerial class the proportion of the total medically-attended colds with head symptoms only and of the total medically-attended colds with throat and chest symptoms that had (1) no bed disability, and (2) bed disability. Figure 3 gives the same data for persons in the clerical, skilled, semi-skilled, and unskilled classes. The distribution of the medically-attended cases according to type of disability was similar for both occupational classes.

The left sides of Figures 2 and 3 show the distribution of medically-attended cases of coryza. Approximately 50 per cent of these cases had bed disability at some time during the illness. In both occupational classes slightly more of the medically-attended cases for persons under 10 years of age had bed dis-

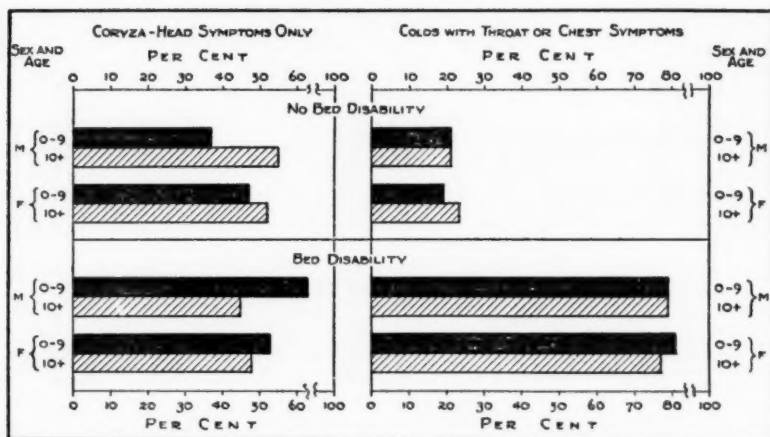


Fig. 3. Proportion of the total medically attended head colds (coryza) and of the total medically attended colds with throat or chest symptoms, classified according to those that had (1) no bed disability, and (2) those that had bed disability. Only persons in families in the clerical, skilled, semi-skilled, and unskilled class are included in the population. Pleasantville and Mt. Kisco, September to May, 1946-1949.

ability than did cases in persons 10 years of age and older.

The right sides of Figures 2 and 3 show the same data for medically-attended colds with throat or chest symptoms. Each age group and sex was similar in the proportion of cases in the two disability groups. From 71 to 82 per cent of the medically-attended colds with throat or chest symptoms had bed disability.

MEDICAL CALLS

Table 5 and Appendix Table 5 show for each occupational class the rate of medical calls per 1,000 population per school year for acute respiratory illness by age for each sex. The rates of medical calls are further classified by the nature of the illness. The rate of medical calls was higher in the professional and managerial class than in all the other occupational classes combined. The rate of medical calls was higher for persons under 10 years of age in each diagnosis and disability class.

Bed disabling colds with throat or chest symptoms had the highest rate of medical calls. This was true for each age group and sex in both occupational classes. Bed disabling colds with

Table 5. Doctors' calls for cases of acute respiratory illness per 1,000 population, classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
Medical Calls Per 1,000 Population Per School Year						
NO BED DISABILITY						
<i>Male</i>	65.9	17.3	48.6	43.6	10.7	32.9
All Ages	131.9	34.8	97.1	100.5	20.1	80.4
0-9	44.1	11.5	32.6	27.5	8.0	19.4
10+						
<i>Female</i>	92.4	30.4	62.0	62.8	16.6	46.2
All Ages	148.0	52.8	95.1	100.4	38.9	61.5
0-9	73.9	22.9	51.0	52.8	10.6	42.2
10+						
BED DISABILITY						
<i>Male</i>	301.6	33.5	268.1	178.6	16.5	162.2
All Ages	695.7	71.0	624.6	416.1	56.7	359.3
0-9	171.2	21.1	150.1	111.3	5.0	106.3
10+						
<i>Female</i>	312.8	22.1	290.7	226.0	15.8	210.2
All Ages	597.1	34.3	562.7	473.0	40.2	432.9
0-9	218.1	18.0	200.1	160.5	9.3	151.2
10+						

Table 6. Number of doctors' calls per medically attended case of acute respiratory illness, classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES						
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms				
Medical Calls Per Attended Case										
NO BED DISABILITY										
<i>Male</i> All Ages	1.40	1.23	1.26	1.45	1.31	1.38	1.32	1.21	1.40	1.45
		1.61	1.04	1.62	1.37	1.41				1.35
	0-9		1.60							
<i>Female</i> All Ages	1.36	1.27	1.64	1.25	1.16	1.59	1.62	1.55	1.59	1.32
		1.42	1.73	1.32	1.71	1.68				1.72
	0-9									
<i>Male</i> All Ages	1.68	1.66	1.82	1.67	1.68	1.71	1.40	1.50	1.75	1.56
		1.72	2.32	1.66	1.93	1.55	1.15	1.99		
	0-9					1.89	1.45			1.95
<i>Female</i> All Ages	1.84	1.84	1.46	1.88	1.90	1.86	1.54	1.65	1.89	1.84
		1.84	1.71	1.86	1.83	1.83				
	0-9									
<i>Male</i> All Ages	1.68	1.66	1.82	1.67	1.68	1.71	1.40	1.50	1.75	1.56
		1.72	2.32	1.66	1.93	1.55	1.15	1.99		
	0-9					1.89	1.45			1.95
<i>Female</i> All Ages	1.84	1.84	1.46	1.88	1.90	1.86	1.54	1.65	1.89	1.84
		1.84	1.71	1.86	1.83	1.83				
	0-9									

throat or chest symptoms had a rate of medical calls four to five times higher than those with no bed disability and from eight to thirteen times higher than bed disabling cases of coryza.

In approximately 70 per cent of the medically-attended cases with a known number of medical calls the doctor saw the patient only once. Table 6 and Appendix Tables 5 and 6 show for each occupational class the number of calls per medically-attended case with a known number of calls by sex for each age.⁶ Illnesses are further classified according to the nature of the illness and type of disability, that is, no bed disability and bed disability. In this study medically-attended cases of acute respiratory illness received slightly more than one call per case. The duration of an illness has an influence on the amount of medical care received per case. The short duration of many acute respiratory illnesses is responsible for the average of one call per medically-attended case.

Figure 4 and Appendix Table 7 show the distribution of medically-attended cases of coryza, colds with head symptoms only, and colds with throat or chest symptoms by type of medical service received. Medical services are classified according to (1) office visits only; (2) home visits only; (3) both home and office visits; and (4) telephone calls only. The two occupational classes were similar with respect to the type of medical service received. Therefore, Figure 4 shows the data for the two occupational classes combined. The upper half of Figure 4 gives the data for colds with no bed disability and the lower half for colds with bed disability.

The type of medical service received shows a marked difference by age for cases of coryza with no bed disability. Persons aged 10 and over had a much larger proportion of office calls for cases that were not confined to bed than did persons under 10 years of age, 78 per cent and 34 per cent, respectively. Children under 10 had more than twice as many home calls as

⁶ In computing medical calls per attended case, only cases with a known number of calls were included, that is, cases in doctors' families, cases treated by telephone only, cases treated in a hospital, and cases with an unknown number of calls were excluded.

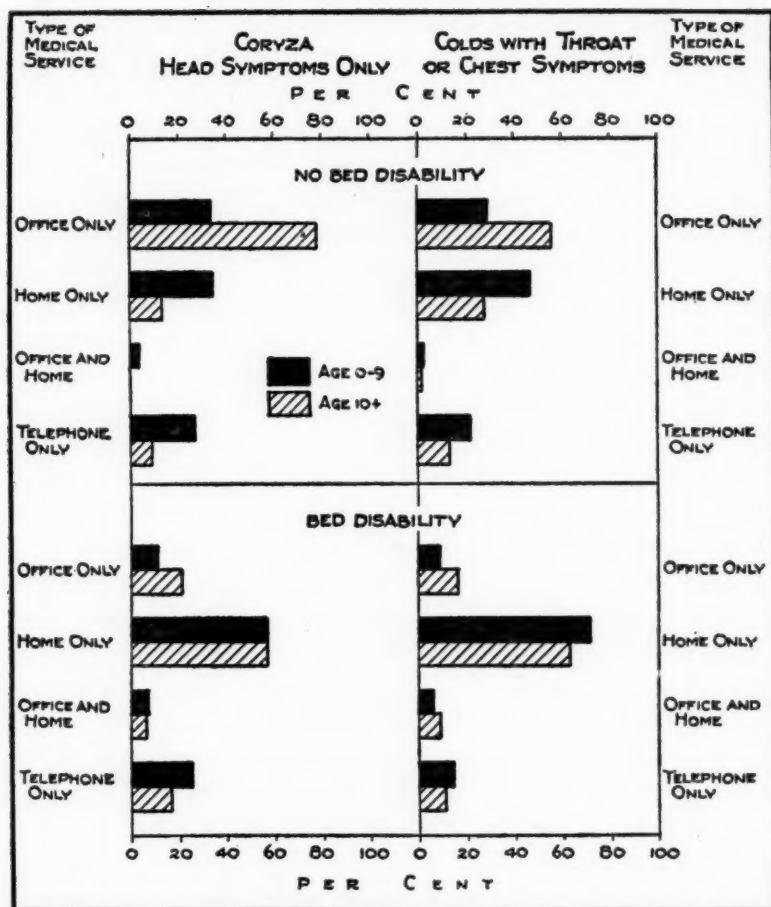


Fig. 4. Distribution of medically attended head colds (coryza) and medically attended colds with throat or chest symptoms by type of medical service received. Pleasantville and Mt. Kisco, September to May, 1946-1949.

persons 10 and over. The lower left section of Figure 4 shows the data for cases of coryza which were confined to bed. The distribution of the cases by type of medical service was similar for the two age groups. In both age groups 57 per cent of the cases had home visits only. In one-fourth of the cases in children under 10, medical advice was given by telephone calls only. This was true of each disability class.

The right side of Figure 4 shows the same data for colds with throat or chest symptoms. Persons 10 years of age and older had more office calls than persons under 10 in each disability class. Seventy-one per cent of the bed disabling colds with throat or chest symptoms among persons under 10 years of age were treated at home only compared to 63 per cent for persons aged 10 and older. The distribution of medical services by type of call was more similar for the two age groups for bed disabling illness than for cases not confined to bed.

INTERVAL BETWEEN ONSET AND MEDICAL CARE

It is of interest to see if the interval from the onset of an illness until the doctor is called is influenced in any way by occupational class, age, sex, disability, or the nature of the illness. The data were arrayed into four intervals: (1) no days, that is, the doctor was called on the day the illness started; (2) one day; (3) two to seven days; and (4) eight or more days.

Occupational Class. The two occupational classes were sim-

Table 7. Distribution of medically attended cases of acute respiratory illness according to number of days between onset and medical care, classified by age and sex. Pleasantville and Mt. Kisco, September to May, 1946-1949.

DAYS BETWEEN ONSET AND MEDICAL CARE	MALE			FEMALE		
	Total	Age 0-9	Age 10+	Total	Age 0-9	Age 10+
PER CENT						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
0	28.2	30.3	25.5	24.5	26.8	22.6
1	22.4	22.9	21.6	20.8	22.1	19.5
2-7	34.4	31.1	38.9	37.4	34.0	40.4
8+	15.0	15.7	14.0	17.3	17.1	17.5
NUMBER						
TOTAL	1,374	790	584	1,582	727	855
0	388	239	149	388	195	193
1	307	181	126	328	161	167
2-7	473	246	227	592	247	345
8+	206	124	82	274	124	150

ilar with respect to the intervals between the onset of an illness and medical care. In both occupational classes the doctor was called on the day the illness started in approximately one-fourth of the cases. In only 16 per cent of the cases was the doctor called for the first time after the seventh day of an illness.

Age and Sex. Table 7 shows for all occupational classes combined the distribution of medically-attended cases of acute respiratory illness for each sex by age according to the number of days between the onset of the case and medical care. The intervals between onset and medical care were similar for cases among males and females by age. The intervals were markedly different between cases in the two age groups for each sex. Children under 10 years of age received medical care on the day of onset and the first day after the onset more often than did persons 10 years of age and older. This was true in each sex. In both age groups only 14 to 18 per cent of the medically-

Table 8. Distribution of medically attended cases of acute respiratory illness according to days between onset and medical care, classified by age and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

DAYS BETWEEN ONSET AND MEDICAL CARE	AGE 0-9			AGE 10+		
	Total	No Bed Dis- ability	Bed Dis- ability	Total	No Bed Dis- ability	Bed Dis- ability
PER CENT						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
0	28.6	23.0	30.4	23.8	16.8	26.3
1	22.5	17.2	24.2	20.4	15.7	22.1
2-7	32.5	37.7	30.9	39.7	45.9	37.5
8+	16.4	22.1	14.5	16.1	21.6	14.1
NUMBER						
TOTAL	1,517	366	1,151	1,439	388	1,051
0	434	84	350	342	65	277
1	342	63	279	293	61	232
2-7	493	138	355	572	178	394
8+	248	81	167	232	84	148

attended cases received medical care for the first time more than a week after the onset of the illness.

Disability. The data on the interval between onset and medical care for cases with no bed disability and cases with bed disability are shown by age for both sexes combined in Table 8. In both age groups cases with bed disability received medical care sooner than did cases which were not confined to bed. From 14 to 16 per cent more of the bed disabling cases received medical attention within one day after the onset of the case than did cases not confined to bed.

Nature of the Illness. Table 9 shows the distribution of medically-attended cases by the interval between onset and medical care classified by the nature of the illness and age. Both cases of coryza and colds with throat or chest symptoms received medical care at approximately the same intervals after the onset of the illness.

It appears from these data that the interval between the

Table 9. Distribution of medically attended cases of acute respiratory illness according to days between onset and medical care, classified by age and diagnosis. Pleasantville and Mt. Kisco, September to May, 1946-1949.

DAYS BETWEEN ONSET AND MEDICAL CARE	AGE 0-9			AGE 10+		
	Total	Coryza- Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza- Head Symptoms Only	Colds With Throat or Chest Symptoms
PER CENT						
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
0	28.6	31.4	28.0	23.8	21.9	24.1
1	22.6	16.7	23.8	20.4	18.6	20.6
2-7	32.5	31.8	32.6	39.7	45.3	38.9
8+	16.3	20.1	15.6	16.1	14.2	16.4
NUMBER						
TOTAL	1,517	258	1,259	1,439	183	1,256
0	434	81	353	342	40	302
1	342	43	299	293	34	259
2-7	493	82	411	572	83	489
8+	248	52	196	232	26	206

onset of an illness and the date of medical care may be influenced by the age of the patient and the extent of disability. Occupational class, the sex of the patient, and the nature of the illness appear to exert little influence upon when the doctor is called in relation to the onset of the illness.

SUMMARY

Every illness reported during the study of acute respiratory illness conducted in two communities in Westchester County, New York, included a record of any medical care received. Of the total illnesses reported during the three years of the study, 17 per cent received medical care.

The population was classified according to the occupational class of the head of the household, sex, and age. The illnesses were further classified by the nature of the illness and by type of disability. Thus it was possible to evaluate the influence of these factors on the incidence of medically-attended cases of acute respiratory illness.

Occupational Class. Persons in families in the professional and managerial class had an incidence of medically-attended cases of acute respiratory illness 32 to 90 per cent higher than persons in families in the other occupational classes. Their incidence of medical calls was also higher. The proportion of the total cases that received medical care was similar in the two occupational classes. The intervals between the onset of a case and medical care were similar also.

Sex and Age. There appeared to be no marked differences between the sexes in the incidence of medically-attended cases. The two age groups showed marked differences in medical care. Persons less than 10 years of age had a higher incidence of both medically-attended cases and medical calls than persons 10 years of age and older. The doctor was called more promptly for persons under 10 and they received more medical care at home than the older age group.

Nature of the Illness. From 17 to 37 per cent of the total colds with throat or chest symptoms received medical care

whereas only 3 to 11 per cent of the colds with head symptoms only were medically attended. A larger proportion of the total medically-attended cases with throat or chest symptoms were treated at home than were cases of coryza. The doctor was called at similar intervals after the onset of the illness for both coryza and cases with throat or chest symptoms.

Disability. Cases confined to bed for one or more days received more medical care than cases not confined to bed. Bed disabling cases also had a higher rate of medical calls. The doctor was called more promptly for bed disabling cases.

ACKNOWLEDGMENT

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An especial acknowledgment is made to the families in Pleasantville and Mt. Kisco who participated in the study.

REFERENCES

1. Van Volkenburgh, V. A. and Frost, W. H.: Acute Minor Respiratory Diseases Prevailing in a Group of Families Residing in Baltimore, Maryland, 1928-1930. Prevalence, Distribution and Clinical Description of Observed Cases. *American Journal of Hygiene*, January, 1933, xvii, No. 1, pp. 122-153.
2. Collins, Selwyn D.: The Incidence of Illness and the Volume of Medical Services Among 9,000 Canvassed Families. United States Public Health Service and the Committee on the Costs of Medical Care. Cases and Days of Illness Among Males and Females, With Special Reference to Confinement to Bed. *Public Health Reports*, January 12, 1940, 55, No. 2, pp. 47-93.
3. Eastern Health District Study in Baltimore, Maryland, 1939-1943. Made by the United States Public Health Service and the Milbank Memorial Fund. (Unpublished data.)
4. Tucher, Doris; Coulter, Jane E.; and Downes, Jean: Incidence of Acute Respiratory Illness Among Males and Females at Specific Ages. The Milbank Memorial Fund *Quarterly*, January, 1952, xxx, No. 1, pp. 42-60.
5. Downes, Jean: Control of Acute Respiratory Illness by Ultra-Violet Lights. Study No. 2. The Milbank Memorial Fund *Quarterly*, April, 1951, xxix, No. 2, pp. 186-217.
6. Tucher, Doris and Downes, Jean: Disability From Respiratory Illness. The Milbank Memorial Fund *Quarterly*, April, 1953, xxxi, No. 2, pp. 141-148.

Appendix Table 1. Cases of acute respiratory illness classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
NO BED DISABILITY						
<i>Male</i>						
All Ages	2,580	1,450	1,130	2,643	1,450	1,193
0-9	1,088	671	417	1,062	618	444
10+	1,492	779	713	1,581	832	749
<i>Female</i>						
All Ages	3,465	1,762	1,703	3,386	1,776	1,610
0-9	1,235	721	514	999	595	404
10+	2,230	1,041	1,189	2,387	1,181	1,206
BED DISABILITY						
<i>Male</i>						
All Ages	1,622	436	1,186	1,420	345	1,075
0-9	786	206	580	670	169	501
10+	836	230	606	750	176	574
<i>Female</i>						
All Ages	1,954	532	1,422	1,553	337	1,216
0-9	874	259	615	544	124	420
10+	1,080	273	807	1,009	213	796

Appendix Table 2. Medically attended cases of acute respiratory illness, classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total ¹	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
NO BED DISABILITY						
Male	175	58	117	144	39	105
All Ages	99	33	66	81	22	59
0-9	76	25	51	63	17	46
10+						
Female	252	61	191	183	49	134
All Ages	111	31	80	75	27	48
0-9	141	30	111	108	22	86
10+						
BED DISABILITY						
Male	599	66	533	456	51	405
All Ages	345	40	305	265	37	228
0-9	254	26	228	191	14	177
10+						
Female	609	66	543	538	51	487
All Ages	306	37	269	235	31	204
0-9	303	29	274	303	20	283
10+						

¹ Excludes 237 cases which occurred in doctors' families.

Appendix Table 3. Population observed during three school years, classified by the occupational class of the head of the household, and by age and sex. Pleasantville and Mt. Kisco combined. September to May, 1946-1949.

AGE GROUPS	BOTH SEXES	MALE	FEMALE
	ALL OCCUPATIONAL CLASSES ¹		
ALL AGES	13,441	6,604	6,837
0-9	3,090	1,536	1,554
10+	10,351 ²	5,068	5,283
	PROFESSIONAL AND MANAGERIAL		
ALL AGES	5,806	2,775	3,031
0-9	1,447	690	757
10+	4,359	2,085	2,274
	ALL OTHER OCCUPATIONAL CLASSES		
ALL AGES	7,635	3,829	3,806
0-9	1,643	846	797
10+	5,992	2,983	3,009

¹ Excludes 978 persons in households in which the head of the household was seeking work, disabled, or retired.

² Includes 44 persons of unknown age.

Appendix Table 4. Proportion of the total medically attended cases which had no bed disability and bed disability, classified by age, sex, occupational class of head of household, and diagnosis. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
	Per Cent					
	NO BED DISABILITY					
<i>Male</i>						
All Ages	22.6	46.8	18.0	24.0	43.3	20.6
0-9	22.3	45.2	17.8	23.4	37.3	20.6
10+	23.0	49.0	18.3	24.8	54.8	20.6
<i>Female</i>						
All Ages	29.3	48.0	26.0	25.4	49.0	21.6
0-9	26.6	45.6	22.9	24.2	46.6	19.0
10+	31.7	50.9	28.8	26.3	52.4	23.3
	BED DISABILITY					
<i>Male</i>						
All Ages	77.4	53.2	82.0	76.0	56.7	79.4
0-9	77.7	54.8	82.2	76.6	62.7	79.4
10+	77.0	51.0	81.7	75.2	45.2	79.4
<i>Female</i>						
All Ages	70.7	52.0	74.0	74.6	51.0	78.4
0-9	73.4	54.4	77.1	75.8	53.4	81.0
10+	68.3	49.1	71.2	73.7	47.6	76.7

Appendix Table 5. Number of medical calls for medically attended cases of acute respiratory illness, classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total ¹	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
NO BED DISABILITY						
<i>Male</i>	183	48	135	167	41	126
All Ages						
0-9	91	24	67	85	17	68
10+	92	24	68	82	24	58
<i>Female</i>	280	92	188	239	63	176
All Ages						
0-9	112	40	72	80	31	49
10+	168	52	116	159	32	127
BED DISABILITY						
<i>Male</i>	837	93	744	684	63	621
All Ages						
0-9	480	49	431	352	48	304
10+	357	44	313	332	15	317
<i>Female</i>	948	67	881	860	60	800
All Ages						
0-9	452	26	426	377	32	345
10+	496	41	455	483	28	455

¹ Excludes 237 cases in doctors' families.

Appendix Table 6. Medically attended cases of acute respiratory illness, classified by age, sex, occupational class of head of household, diagnosis, and type of disability. Pleasantville and Mt. Kisco, September to May, 1946-1949.¹

SEX AND AGE	PROFESSIONAL AND MANAGERIAL			ALL OTHER OCCUPATIONAL CLASSES		
	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	Total	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
NO BED DISABILITY						
<i>Male</i>	131	74	38	121	31	90
All Ages						
0-9		23	93	61	14	47
10+	57	15	42	60	17	43
<i>Female</i>	206	88	56	150	39	111
All Ages						
0-9		26	150	57	20	37
10+	118	30	88	93	19	74
BED DISABILITY						
<i>Male</i>	497	289	51	399	45	354
All Ages						
0-9		32	446	227	32	195
10+	208	19	189	172	13	159
<i>Female</i>	515	246	46	463	39	424
All Ages						
0-9		22	469	199	22	177
10+	269	24	245	264	17	247

¹ Excludes 237 cases in doctors' families, 430 cases for which only medical care was a telephone call, 36 cases for which the total calls were unknown, and 8 cases for which all medical care was in a hospital.

TYPE OF MEDICAL CALL	AGE 0-9			AGE 10+		
	All Diagnoses	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms	All Diagnoses	Coryza—Head Symptoms Only	Colds With Throat or Chest Symptoms
Professional and Managerial Class						
NO CONFINEMENT TO BED						
TOTAL	209	64	145	205	50	155
Office Only	65	25	40	123	35	88
Home Only	95	23	72	48	10	38
Home and Office	2	1	1	4	0	4
Telephone Only	47	15	32	30	5	25
CONFINEMENT TO BED						
TOTAL	646	75	571	547	53	494
Office Only	53	8	45	89	12	77
Home Only	445	41	404	344	28	316
Home and Office	37	5	32	43	2	41
Telephone Only	111	21	90	71	11	60
All Other Occupational Classes						
NO CONFINEMENT TO BED						
TOTAL	156	49	107	169	39	130
Office Only	48	14	34	106	34	72
Home Only	64	17	47	44	2	42
Home and Office	6	3	3	3	0	3
Telephone Only	38	15	23	16	3	13
CONFINEMENT TO BED						
TOTAL	494	68	426	485	33	452
Office Only	51	8	43	83	6	77
Home Only	346	41	305	304	21	283
Home and Office	29	5	24	49	3	46
Telephone Only	68	14	54	49	3	46

Appendix Table 7. Type of medical service for medically attended cases of acute respiratory illness, classified by age and occupation of head of household, and by diagnosis and type of disability of the case. Pleasantville and Mt. Kisco, September to May, 1946-1949.

SOCIAL AND PSYCHOLOGICAL FACTORS AFFECTING FERTILITY

XXIII. ECONOMIC TENSION AND SOCIAL MOBILITY IN RELATION TO FERTILITY PLANNING AND SIZE OF PLANNED FAMILY¹

RUTH RIEMER AND CLYDE V. KISER

IT IS frequently said that in modern urban society a large family is a deterrent to the attainment of desired levels of living and, alternatively, that the desire for a higher standard of living is a deterrent to fertility. Although various attempts have been made to measure the cost of a child and its effect on a family's level of living, the interrelationships of family size at any given stage of completeness, desired level of living, and degree of discrepancy between desired and actual levels of living still are largely matters for conjecture. Nor is there any clear evidence that children are a handicap in the struggle for higher incomes and better jobs, or that they are a spur to achievement. Similarly, the familiar hypothesis that desire for a higher standard of living or higher social status motivates much deliberate restriction of fertility is supported by a great variety of inferential evidence, but it has never been directly tested.

Although the hypotheses of the Indianapolis Study do not specifically mention either social mobility or aspiration for higher status, hypothesis 1 was intended to determine whether a difference between actual and desired levels of living motivated fertility control and restriction. Data were also collected which make it possible to classify couples with respect to social mobility, both intergenerational and intragenerational.

Hypothesis 1 was: "The greater the difference between the

¹This is the twenty-third of a series of reports on a study conducted by the Committee on Social and Psychological Factors Affecting Fertility, sponsored by the Milbank Memorial Fund with grants from the Carnegie Corporation of New York. The Committee consists of Lowell J. Reed, Chairman; Daniel Katz; E. Lowell Kelly; Clyde V. Kiser; Frank Lorimer; Frank W. Notestein; Frederick Osborn; S. A. Switzer; Warren S. Thompson; and P. K. Whelpton.

actual level of living and the standard of living desired, the higher the proportion of couples practicing contraception effectively and the smaller the planned families." This has usually been referred to as "the economic tension hypothesis." It was assumed that the degree of "economic tension" was equivalent to the difference between the actual and desired levels of living. As will be indicated, however, the data collected on the relation of economic tension to fertility behavior proved to be highly unsatisfactory for the purpose of inferring motivation because of certain selective factors. Nevertheless, the methods and the analyses are described briefly for the record and for their possible usefulness with respect to plans for future studies.

The preceding article in the series was concerned with the relation of intergenerational changes in social status to fertility and fertility planning.² The present one, by focussing on changes in broad income and occupational class subsequent to marriage, attempts to throw some additional light on the interrelations of fertility, fertility planning, and social mobility. It is possible that planned fertility is more closely related to aspiration for social advancement and resistance to social demotion than to actual social mobility. However, in the absence of direct evidence on these psychological states at the time of active fertility planning, it is worthwhile to glean whatever indirect evidence there may be on the relationship of actual shifts in income and occupational status to fertility behavior.

Specifically the present paper contains three sections in which different variables are examined in relation to fertility behavior. These are: I. Economic Tension; II. Income Changes; and III. Occupational Class Changes.

In all three sections the inflated sample of all "relatively fecund" couples is used. Measures of successful fertility planning and fertility used in Section III differ somewhat from those

² Kantner, J. F. and Kiser, C. V.: Social and Psychological Factors Affecting Fertility. xxii. The Interrelation of Fertility, Fertility Planning, and Intergenerational Social Mobility. *The Milbank Memorial Fund Quarterly*, January, 1954, xxxii, No. 1, pp. 69-103 (Reprint pp. 969-1003).

used in Sections I and II because the analyses were first done independently with different orientations.³

I. ECONOMIC TENSION

Two types of data were collected for the purpose of classifying couples according to difference between actual and desired levels of living. One type is that of quantitative data, or more strictly "dollars and cents" data, that permitted the computation of percentage differences between what the couples had and what they wanted with respect to income, home, and automobile. Wives and husbands in the Study were asked: "How large an income per week would you need in order to live in a way that would be satisfactory to you with your present family?" The amount given was coded as a percentage of the actual average weekly earnings of the family during the preceding six months. The latter item itself was computed from the employment and income histories of the wife and husband.

With respect to the home, the wife and husband were asked: "How much rent would you have to pay for a satisfactory house, or what would be the rental value of a home you would like to own?" The amount given was coded as a percentage of the actual monthly rent paid at the time of the interview, or the computed monthly rental value of the home if it was owned.

The third question, asked of the husband only, was: "What is the approximate value of a car you would like to have?" The percentage difference between this amount and the reported purchase price of the present car (new or used) was coded.

The second type of data is that of multiple-choice replies of the wife and husband to certain questions. These are from a longer series of questions that were preceded by the following instruction to respondents: "Think back over the twelve to fifteen years that you have been married. Then answer [the various questions] so that they will show how things have been

³ Kiser is primarily responsible for Sections I and II and Riemer is primarily responsible for Section III and the remainder of the paper.

DURING MOST OF YOUR MARRIED LIFE." Three of the questions relate to income, home, and automobile. These are:

How much more income would you have needed in order to live in a way that would have been satisfactory to you? (Five possible replies ranging from "very much" to "very little.")

Have you felt satisfied with most of the houses in which you have lived? Five possible replies ranging from "very dissatisfied" to "very satisfied.")

How interested have you been in having a car (or a better car)? (Five possible replies ranging from "very much" to "very little.")

In addition, the couples were asked:

Have you had as much to spend as most of your friends? (Five possible replies ranging from "much less" to "much more.")

Has the family income been so small that you have had to deny yourself many things you wanted? (Five possible replies ranging from "a great many things" to "very few things.")

Have your living conditions been better or poorer than those of your parents while you were growing up (6-16 years old)? (Five possible replies ranging from "much poorer" to "much better.")

Summary Indices of Economic Tension were also constructed for the wife, husband, and couple by adding the scores (code numbers) for responses to five of the multiple-choice questions listed above.⁴ Since the five possible replies of each spouse to each of the five questions were coded 1-3-5-7-9 in the assumed

⁴ The last-mentioned question regarding the comparative living conditions of self and parents was not included on the assumption that cross-generation comparison is not a good measure of economic tension. The three quantitative measures were excluded from the index since the qualitative counterparts of these questions (multiple-choice replies) are among the five included. Thus the components of the Summary Index are multiple-choice replies concerning amount more income needed to live in a satisfactory manner, extent satisfied with houses, extent of interest in having a car or better car, comparison of self and friends with respect to amount of spending money available, extent to which respondent had to deny himself things because the family income was too small.

Table 1. The per cent of couples classified as "planned families" and as "number and spacing planned," by given quantitative criteria of economic tension.

CRITERION OF ECONOMIC TENSION	FOR REPLIES BY WIFE			FOR REPLIES BY HUSBAND		
	Number of Couples	Percentage		Number of Couples	Percentage	
		Planned Families	Number and Spacing Planned		Planned Families	Number and Spacing Planned
ALL COUPLES	1,444	42.1	27.9	1,444	42.1	27.9
<i>Desired Weekly Earnings as Per Cent of Actual</i>						
155+ (High Tension)	332	32.8	19.6	374	38.0	22.2
115-154	565	44.1	28.3	591	42.3	26.4
95-114	346	46.2	30.1	334	47.6	35.6
Under 95 (Low Tension)	194	44.8	36.6	138	39.1	30.4
Unknown	7			7		
<i>Value or Rent of Desired Home as Per Cent of Value or Rent of Actual Home</i>						
155+ (High Tension)	497	35.6	22.3	541	35.1	20.3
130-154	320	39.1	23.1	288	38.9	26.4
105-129	248	43.5	30.2	272	45.2	31.3
Under 105 (Low Tension)	377	52.0	37.4	341	53.1	38.1
Unknown	2			2		
<i>Per Cent Better Car Wanted</i>						
40+ (High Tension)						
20-39				486	35.4	22.0
1-19				163	47.2	38.7
0				204	51.0	38.7
Less Expensive (Low Tension)				207	50.2	28.5
Owens No Car				123	53.7	39.0
Unknown				234	31.2	16.7
				27		

CRITERION OF ECONOMIC TENSION	FOR REPLIES BY WIFE		
	Number of Couples	Percentage	
		Planned Families	Number and Spacing Planned
ALL COUPLES	1,444	42.1	27.9
<i>Amount More Income Needed to Live in Satisfactory Manner</i>			
Very Much	113	36.3	19.5
Much	337	38.6	24.3
Some	655	42.7	29.3
Little	200	40.0	28.5
Very Little	139	55.4	36.0
<i>Satisfied With Houses in Which You Have Lived?</i>			
Very Dissatisfied	57	40.4	28.1
Some Dissatisfied	205	34.6	17.1
Neither Satisfied Nor Dissatisfied	104	29.8	23.1
Fairly Satisfied	760	41.4	27.2
Very Satisfied	318	52.8	38.1
<i>Extent Interested in Having a Car or a Better Car?</i>			
Very Much	185	41.1	26.5
Much	209	36.8	25.4
Some	473	42.7	27.3
Little	253	45.1	30.8
Very Little	324	42.9	29.0
<i>As Much to Spend as Friends?</i>			
Much Less or Less	568	35.6	22.5
Same Amount	678	43.5	29.5
More or Much More	198	56.1	37.9
<i>Living Conditions Compared with Parents?</i>			
Much Poorer or Poorer	148	24.3	12.8
Same	263	38.4	22.4
Better	618	44.0	31.1
Much Better	415	48.0	32.0
<i>Had to Deny Yourself Things?</i>			
Very Many or Many	408	34.6	18.9
Some	524	40.5	29.2
Few or Very Few	512	49.8	33.8

Table 2. The per cent of couples classified as "planned families" and as "number and spacing planned," by given qualitative (multiple choice reply) criteria of economic tension.

FOR REPLIES BY HUSBAND		
Number of Couples ¹	Percentage	
	Planned Families	Number and Spacing Planned
1,444	42.1	27.9
107	28.0	19.6
295	39.3	21.7
673	42.5	27.9
223	45.3	34.5
144	50.7	35.4
71	19.7	8.5
272	34.6	16.9
115	34.8	17.4
777	42.9	30.4
209	60.8	45.5
201	41.8	21.4
244	48.4	36.1
533	35.1	21.0
244	42.6	31.1
222	51.8	37.8
568	33.8	20.8
625	44.0	29.9
251	56.2	39.0
123	22.8	7.3
256	37.1	24.6
611	42.4	27.3
451	50.1	36.4
354	31.4	18.9
555	39.8	24.5
535	51.6	37.4

¹ Two husbands unknown on "Amount More Income Needed. . . ."

Three husbands unknown on "Living Conditions Compared with Parent?"

order from high to low "economic tension," the total score for each spouse might range from 5 to 45 and the total score for the couple might range from 10 to 90. In order to have the summary indices of the wife, husband, and couple on comparable levels, the summary score for each spouse separately was simply doubled. Hence in all cases the possible range of summary score is 10-90, with low score indicative of high economic tension and *vice versa*.⁵

Fertility-Planning in Relation to Economic Tension. The first part of the hypothesis, as already stated, is "The greater the difference between the actual level of living and the standard of living desired . . . the higher the proportion of couples practicing contraception effectively." Actually, a fairly marked relation in the other direction is found. Thus the proportion of planned families, and especially the proportion of "number and spac-

⁵ The Indianapolis Study coding scheme was based upon the assumed relation of the given variable to fertility. Hence, high economic tension, low fertility, low code number. This system makes it possible to combine directly the scores for items under different hypotheses.

Table 3. Per cent distribution by fertility-planning status, by summary index of economic tension of the wife, husband, and couple.

SUMMARY INDEX OF ECONOMIC TENSION	NUMBER OF COUPLES	PER CENT BY FERTILITY-PLANNING STATUS					
		Total	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility	All Planned Families
<i>Wife</i>							
Under 50 (High)	550	100	21.3	14.9	31.3	32.5	36.2
50-59 (Medium)	450	100	29.3	12.9	33.6	24.2	42.2
60+ (Low)	444	100	34.7	14.6	29.5	21.2	49.3
<i>Husband</i>							
Under 50 (High)	563	100	20.8	13.9	31.1	34.3	34.6
50-59 (Medium)	464	100	25.9	15.9	32.3	25.9	41.8
60+ (Low)	417	100	39.8	12.7	30.9	16.5	52.5
<i>Couple</i>							
Under 50 (High)	579	100	19.5	14.2	32.3	34.0	33.7
50-59 (Medium)	438	100	30.4	12.8	34.0	22.8	43.2
60+ (Low)	427	100	36.8	15.7	27.6	19.9	52.5
<i>Wife and Husband Jointly Considered</i>							
<i>Wife</i>							
Under 40	106	100	4.7	19.8	25.5	50.0	24.5
Under 40	163	100	25.2	14.7	30.1	30.1	39.9
Under 40	1	*					
40-69	169	100	17.2	14.2	29.0	39.6	31.4
Under 40	688	100	29.1	12.1	36.2	22.7	41.1
40-69	95	100	46.3	10.5	24.2	18.9	56.8
Under 40	8	*					
Under 40	133	100	36.1	18.8	24.8	20.3	54.9
Under 40	81	100	40.7	21.0	23.5	14.8	61.7

* Percentage not shown if based on fewer than 20 cases.

ing planned" couples, tends to be *inversely* instead of *directly* associated with the percentage excess of the desired over actual weekly earnings, quality of house, and price of car (Table 1). Results of this type are also found in classifications by replies to specific multiple-choice questions⁶ and by the Summary Indices of Economic Tension described above (Tables 2 and 3).

These findings immediately suggest that our indices of "economic tension" are inversely related to economic status itself. This is in fact the case, as indicated by Tables 4 and 5.⁷ Selection of this type is not confined to classifications based upon percentage differences between the actual and desired items. It is also found in the classifications based upon the multiple-choice replies. In fact, it is more pronounced in the multiple-choice replies to the question regarding amount more income needed than in the computed percentage differences between actual and desired incomes. On the other hand, it is much less pronounced in the multiple-choice replies regarding interest in having a car or a new car than in the percentage differences between the cost of actual and desired cars.

Selections of this type account for most if not all the observed inverse relation of fertility-planning status to "economic tension" as defined. When analyses are made separately for each of three broad *income* groups (\$2,400 and over, \$1,600-2,399, and under \$1,600 average annual earnings of husband since marriage) the observed relation is greatly reduced

⁶ However, the multiple-choice replies of the wives to the question regarding interest in having a car or better car are only slightly related to fertility-planning status. It will be noted that "planned families" includes "number and spacing planned" and "number planned." See Whelpton, P. K. and Kiser, C. V.: *Social and Psychological Factors Affecting Fertility. VI. The Planning of Fertility.* The Milbank Memorial Fund *Quarterly*, January, 1947, xxv, No. 1, pp. 63-111 (Reprint pp. 209-257).

⁷ This means in general that the lower the income, rental value of the home, and purchase price of automobile, the higher is likely to be the percentage difference between the actual and the desired. This is not surprising, especially with reference to purchase price of car. A man who spent only \$300 for a second-hand car could easily express a desire for one that would cost three times as much at 1941 car prices. On the other hand, one who bought a new car of the heavier type probably would not want a more expensive automobile and might reasonably express a preference for a lighter and less expensive car.

Table 4. The relation of husband's average annual earnings since marriage to percentage difference between the actual and the desired value of the family income, home, and automobile.

CRITERION OF ECONOMIC TENSION	HUSBAND'S EARNINGS (ALL COUPLES)				HUSBAND'S EARNINGS (PLANNED FAMILIES)				
	Number of Couples ¹	Per Cent			Number of Couples ¹	Per Cent			
		Total	\$2400 and Over	\$1600- 2399		Under \$1600	Total	\$2400 and Over	\$1600- 2399
<i>Family Earnings Desired by Wife as Per Cent of Actual</i>									
155+ (High Tension)	332	100	12.7	23.5	63.9	100	22.9	27.5	49.5
115-154	565	100	13.3	32.2	54.5	100	18.9	29.7	51.4
95-114	346	100	17.1	37.9	45.1	100	21.9	38.1	40.0
Under 95 (Low Tension)	194	100	29.9	33.5	36.6	100	37.9	34.5	27.6
<i>Value or Rental of Home Desired by Wife as Per Cent of Value or Rental of Actual Home</i>									
155+ (High Tension)	496	100	6.9	25.6	67.5	100	11.4	29.0	59.7
130-154	320	100	16.6	30.6	52.8	100	22.4	34.4	43.2
105-129	248	100	22.6	41.1	36.3	100	29.6	39.8	30.6
Under 105 (Low Tension)	377	100	24.7	34.2	41.1	100	31.6	29.6	38.8
<i>Per Cent Better Car Wanted By Husband</i>									
40+ (High Tension)	485	100	6.8	27.4	65.8	100	9.9	28.7	61.4
20-39	163	100	30.1	42.9	27.0	100	44.2	31.2	24.7
1-19	204	100	24.5	41.2	34.3	100	29.8	34.6	35.6
0 (No Difference)	207	100	28.0	36.2	35.7	100	36.5	34.6	28.8
Less Exp. (Low Tension)	123	100	27.6	29.3	43.1	100	27.3	37.9	34.8
Owens No Car	234	100	2.1	20.1	77.8	100	0.0	28.8	71.2

¹ Excludes couples of unknown status with respect to economic tension or husband's earnings.

Table 5. The relation of husband's average annual earnings since marriage to economic tension as measured by multiple choice replies to various questions.

CRITERION OF ECONOMIC TENSION	HUSBAND'S EARNINGS (ALL COUPLES)				HUSBAND'S EARNINGS (PLANNED FAMILIES)					
	Number of Couples ¹	Per Cent			Number of Couples	Per Cent				
		Total	\$2400 and Over	\$1600- 2399		Under \$1600	Total	\$2400 and Over	\$1600- 2399	Under \$1600
<i>Amount More Income Needed (Wife)</i>	450	100	4.2	20.0	75.8	171	100	7.0	27.5	65.5
Very Much or Much	655	100	16.2	35.3	48.5	280	100	21.4	32.1	46.4
Some	199	100	25.1	37.7	37.2	79	100	39.2	38.0	22.8
Little	139	100	43.9	43.2	12.9	77	100	50.6	36.4	13.0
<i>Satisfied With Houses in Which You Have Lived? (Wife)</i>										
Very or Somewhat Dissatisfied	261	100	6.5	22.6	70.9	93	100	11.8	18.3	69.9
Neither Satisfied Nor Dissatisfied	104	100	13.5	22.1	64.4	31	100	32.3	25.8	41.9
Fairly Satisfied	760	100	16.3	30.0	53.7	315	100	22.5	32.7	44.8
Very Satisfied	318	100	25.5	45.9	28.6	168	100	29.8	39.9	30.4
<i>Want a Car or Better Car? (Husband)</i>										
Very Much	200	100	12.0	24.5	63.5	83	100	16.9	33.7	49.4
Much	244	100	11.5	33.2	55.3	118	100	18.6	33.9	47.5
Some	533	100	10.9	35.8	53.3	187	100	12.8	34.2	52.9
Little	244	100	21.7	31.1	47.1	104	100	30.8	30.8	38.5
Very Little	222	100	32.9	26.6	40.5	115	100	43.5	27.0	29.6

¹ Excludes couples of unknown status with respect to economic tension or husband's earnings.

Table 6. The per cent of couples classified as "planned families," by given quantitative criteria of economic tension and by husband's average annual earnings since marriage.

CRITERION OF ECONOMIC TENSION	HUSBAND'S EARNINGS			HUSBAND'S EARNINGS		
	\$2,400 and Over	\$1,600-2,399	Under \$1,600	\$2,400 and Over	\$1,600-2,399	Under \$1,600
	Number of Couples ¹			Per Cent Planned Families		
<i>Family Earnings Desired by Wife as Per Cent of Actual</i>						
155+ (High Tension)	42	78	212	59.5	38.5	25.5
115-154	75	182	308	62.7	40.7	41.6
95-114	59	131	156	59.3	46.6	41.0
Under 95 (Low Tension)	58	65	71	56.9	46.2	33.8
<i>Value or Rental of Home Desired by Wife as Per Cent of Value or Rental of Actual Home</i>						
155+ (High Tension)	34	127	335	58.8	40.2	31.3
130-154	53	98	169	52.8	43.9	32.0
105-129	56	102	90	57.1	42.2	36.7
Under 105 (Low Tension)	93	129	155	66.7	45.0	49.0
<i>Per Cent Better Car Wanted by Husband</i>						
40+ (High Tension)	33	133	319	51.5	36.8	32.9
20-39	49	70	44	69.4	34.3	43.2
1-19	50	84	70	62.0	42.9	52.9
0 (No Difference)	58	75	74	65.5	48.0	40.5
Less Expensive (Low Tension)	34	36	53	52.9	69.4	43.4
Owens No Car	5	47	182	*	44.7	28.6

* Percentage not shown if based on fewer than 20 cases.

¹ Excludes couples of unknown status with respect to economic tension or husband's earnings.

Table 7. The percentage of couples classified as "planned families," by given qualitative (multiple choice reply) criteria of economic tension and by husband's average annual earnings since marriage.

CRITERION OF ECONOMIC TENSION	HUSBAND'S EARNINGS			Number of Couples ¹	HUSBAND'S EARNINGS		
	\$2,400 and Over	\$1,600- 2,399	Under \$1,600		\$2,400 and Over	\$1,600- 2,399	Under \$1,600
	Per Cent Planned Families			Per Cent Planned Families			
<i>Amount More Income Needed (Wife)</i>							
Very Much or Much	19	90	341	*	52.2	32.8	
Some	106	231	318	56.6	39.0	40.9	
Little	50	75	74	62.0	40.0	24.3	
Very Little	61	60	18	63.9	46.7	*	
<i>Satisfied With Houses in Which You Have Lived? (Wife)</i>							
Very or Somewhat Dissatisfied	17	59	185	*	28.8	35.1	
Neither Satisfied Nor Dissatisfied	14	23	67	*	34.8	19.4	
Fairly Satisfied	124	228	408	57.3	45.2	34.6	
Very Satisfied	81	146	91	61.7	45.9	56.0	
<i>Want a Car or Better Car? (Husband)</i>							
Very Much	24	49	127	58.3	57.1	32.3	
Much	28	81	135	78.6	49.4	41.5	
Some	58	191	284	41.4	33.5	34.9	
Little	53	76	115	60.4	42.1	34.8	
Very Little	73	59	90	68.5	52.5	37.8	

* Percentage not shown if based on fewer than 20 cases.

¹ Excludes couples of unknown status with respect to economic tension or husband's earnings.

(Tables 6 and 7). The proportion of planned families still tends to be somewhat larger in the "low tension" than in "high tension" groups. This might arise partly from differences in economic status within each of the three broad income ranges considered. Also, there is probably a genuinely lower satisfaction with life conditions among the unsuccessful fertility planners, especially the "excess fertility" couples.

Fertility in Relation to Economic Tension. The second part of the hypothesis is "The greater the difference between the actual level of living and the standard of living desired, the smaller the planned family." This is not borne out by the data on percentage differences between actual and desired weekly earnings, monthly rental value of the home, and price of car. In fact, as indicated in Table 8, the opposite type of relation is clear-cut among both "number and spacing planned" and "number planned" couples when these are classified according to percentage difference between actual and desired earnings. Within the "number and spacing planned" group, fertility rates differ very little by percentage difference between actual and desired rental value of home. Among all "planned families" those in the "highest tension" category have the highest fertility rate. A similar description applies also to classifications by percentage difference between cost of present and desired automobile.

Also, in most of the classifications by multiple-choice replies of wives and husbands to the several questions, fertility rates within the "number and spacing planned" group differ little (Table 9). Within the limits of these small differences, however, the hypothesis is supported in the classifications by statements of wives and husbands on the extent to which they had found it necessary to deny themselves things they wanted, by statement of husbands on interest in having a better car, and by statements of wives on their living conditions as compared with those of their parents. Rather striking support of the hypothesis is afforded in the classification by statements of wives and husbands on "amount more income needed."

CRITERION OF ECONOMIC TENSION	FOR REPLIES BY WIFE				
	Number of Couples		Fertility Rate		
	Planned Families	N. & S. P.	All Couples	Planned Families	N. & S. P.
ALL COUPLES	608	403	203	148	106
<i>Amount More Income Needed to Live in Satisfactory Manner</i>					
Very Much or Much	171	104	230	149	101
Some	280	192	191	141	104
Little	80	57	196	151	107
Very Little	77	50	181	162	128
<i>Satisfied with Houses in Which You Have Lived?</i>					
Very Dissatisfied	23	16	237	143	*
Somewhat Dissatisfied	71	35	226	170	97
Neither Satisfied Nor Dissatisfied	31	24	225	165	138
Fairly Satisfied	315	207	207	148	106
Very Satisfied	168	121	165	135	104
<i>Extent Interested in Having a Car or a Better Car?</i>					
Very Much	76	49	221	149	108
Much	77	53	207	151	115
Some	202	129	199	157	109
Little	114	78	193	126	87
Very Little	139	94	205	148	113
<i>As Much to Spend as Friends?</i>					
Much Less or Less	202	128	225	156	105
Same Amount	295	200	195	148	115
More or Much More	111	75	166	132	87
<i>Living Conditions Com- pared with Parents'</i>					
Much Poorer or Poorer	36	19	263	153	*
Same	101	59	208	157	102
Better	272	192	199	143	107
Much Better	199	133	184	148	114
<i>Had to Deny Self Things?</i>					
Very Many or Many	141	77	236	165	106
Some	212	153	199	136	100
Few or Very Few	255	173	181	148	112

Table 9. Children ever born per 100 couples among all couples, all "planned families," and "number and spacing planned" families, by given qualitative (multiple choice reply) criteria of economic tension.

FOR REPLIES BY HUSBAND				
Number of Couples ¹		Fertility Rate		
Planned Families	N. & S. P.	All Couples	Planned Families	N. & S. P.
608	403	203	148	106
146	85	221	145	86
286	188	202	151	108
101	77	175	128	104
73	51	202	169	143
14	6	321	*	*
94	46	212	169	115
40	20	230	145	80
333	236	195	145	108
127	95	167	137	105
84	43	241	160	107
118	88	195	131	91
187	112	201	152	111
104	76	184	141	109
115	84	205	154	114
192	118	228	164	113
275	187	190	137	102
141	98	179	146	108
28	9	286	204	*
95	63	221	135	92
259	167	200	158	114
226	164	174	134	102
111	67	236	156	104
221	136	208	150	98
276	200	176	142	113

* Rate not shown if based on fewer than 20 cases.

¹ Two husbands unknown on "Amount More Income Needed. . . ."

Thus among the "number and spacing planned" couples fertility is directly associated with percentage difference between actual and desired income; it is inversely associated with "economic tension" as measured by the "multiple-choice" replies to the question on amount more income needed.⁸ As this implies there is only a very low correlation between the two sets of data. The Pearsonian coefficient of correlation between the quantitative and qualitative data on amount more income needed is only +.16 for the wives and +.12 for the husbands.

⁸ There are probably several reasons why these data yield opposite relationships in "number and spacing planned" families. One factor is the heavier selection of couples of low economic status among those stating that they needed "very much" more income than among those falling into the category of greatest economic tension on the basis of percentage difference between actual and desired earnings. This has relevance in that fertility is directly associated with economic status in the "number and spacing planned" group.

(Continued on page 185)

Table 10. Children ever born per 100 couples of specified fertility-planning status, by summary index of economic tension of the wife, husband, and couple.

SUMMARY INDEX OF ECONOMIC TENSION	NUMBER OF COUPLES				FERTILITY RATE					
	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility	All Couples	Number and Spacing Planned	Number Planned	Quasi- Planned	Excess Fertility	All Planned Families
<i>Wife</i>										
Under 50 (High)	117	82	172	179	229	112	232	210	321	161
50-59 (Medium)	132	58	151	109	196	102	226	191	300	139
60+ (Low)	154	65	131	94	179	106	226	195	243	142
<i>Husband</i>										
Under 50 (High)	117	78	175	193	228	109	218	212	318	152
50-59 (Medium)	120	74	150	120	197	98	243	186	283	153
60+ (Low)	166	53	129	69	176	111	223	198	257	138
<i>Couple</i>										
Under 50 (High)	113	82	187	197	235	105	244	212	328	164
50-59 (Medium)	133	56	149	100	188	95	220	194	286	132
60+ (Low)	157	67	118	85	175	117	216	186	233	147
<i>Wife and Husband Jointly Considered</i>										
<i>Wife</i>										
Under 40	5	21	27	53	287	*	200	204	374	196
Under 40 Under 40	41	24	49	49	226	107	275	235	292	169
Under 40 70+	1	0	0	0	*	*	*	*	*	*
40-69 Under 40	29	24	49	67	240	110	238	222	309	168
40-69 40-69	200	83	249	156	190	99	225	188	290	136
40-69 70+	44	10	23	18	185	136	*	213	*	148
70+ Under 40	2	1	5	0	*	*	*	*	*	*
70+ 40-69	48	25	33	27	162	79	224	212	189	129
70+ 70+	33	17	19	12	175	133	*	*	*	162

* Rate not shown if based on fewer than 20 cases.

SUMMARY INDEX OF ECONOMIC TENSION OF THE COUPLE	NET WORTH OF THE COUPLE			
	Total	\$4,000 and Over	\$1,000- 3,999	Under \$1,000
	FERTILITY RATE			
ALL COUPLES	148	147	143	153
Under 50 (High)	164	148	157	172
50-59 (Medium)	132	138	143	115
60+ (Low)	147	151	126	166
	NUMBER OF COUPLES			
ALL COUPLES ¹	608	216	185	206
Under 50 (High) ¹	195	25	61	108
50-59 (Medium)	189	56	67	66
60+ (Low)	224	135	57	32

¹ Total includes one case unknown net worth.

Table 11. Children ever born per 100 "planned families," by summary index of economic tension and net worth of the couple.

The hypothesis is not supported when the summary index of economic tension based on replies to *five* of the multiple-choice questions is used (Tables 10 and 11). Furthermore, as indicated in Table 12, the proportion of couples of "high economic tension" tends to increase with size of planned family when "net worth" of the couple is held virtually constant. The chief exception is afforded by childless couples who tend to outrank the one-child couples with respect to proportions classified as "high economic tension." The second general point

Another difference between the two types of classification is one of time reference. The multiple-choice questions relate specifically to conditions "*during most of the married life.*" The computed percentage differences, on the other hand, relate to desired weekly earnings compared with weekly earnings during the past six months, to desired rental value compared with rental value at interview, and to price of desired car compared with purchase price of present car regardless of when it was bought. From the standpoint of time reference, the qualitative criteria of economic tension are more appropriate. The hypothesis is concerned with "tension" in relation to fertility planning and fertility during the whole married life, so the indices of tension should also relate more or less to the total period rather than to the last part of it. Some couples motivated to limit family size by strong desires for higher levels of living may have been successful in substantially reducing the gap between actual and desired levels after 12-15 years of married life. Such couples presumably would tend to fall into "high tension" categories in classifications relating to "most of the time since marriage" but in "low tension" categories in classifications relating to the last part of the married life considered.

Table 12. Distribution of "planned families" by summary index of economic tension of the couple, by number of live births and net worth of the couple.

SUMMARY INDEX ECONOMIC TENSION OF THE COUPLE	NUMBER OF COUPLES				PERCENTAGE DISTRIBUTION			
	0 Live Birth	1 Live Birth	2 Live Births	3+ Live Births	0 Live Birth	1 Live Birth	2 Live Births	3+ Live Births
	HIGH NET WORTH OF COUPLE (\$4,000 AND OVER)							
TOTAL	41	66	85	24	100.0	100.0	100.0	100.0
Under 50 (High)	7	4	9	5	17.1	6.1	10.6	20.8
50-59 (Medium)	11	21	17	7	26.8	31.8	20.0	29.2
60+ (Low)	23	41	59	12	56.1	62.1	69.4	50.0
MEDIUM NET WORTH OF COUPLE (\$1,000-\$3,999)								
TOTAL	45	43	75	22	100.0	100.0	100.1	100.0
Under 50 (High)	13	10	29	9	28.9	23.3	38.7	40.9
50-59 (Medium)	18	16	23	10	40.0	37.2	30.7	45.5
60+ (Low)	14	17	23	3	31.1	39.5	30.7	13.6
LOW NET WORTH OF COUPLE (UNDER \$1,000)								
TOTAL	43	55	78	30	100.0	100.0	100.0	100.0
Under 50 (High)	17	26	47	18	39.5	47.3	60.3	60.0
50-59 (Medium)	20	21	21	4	46.5	38.2	26.9	13.3
60+ (Low)	6	8	10	8	14.0	14.5	12.8	26.7

apparent in Table 12 is that within each size-of-planned family group, economic tension, as measured, is inversely related to net worth of the couple.

Toward the end of the interviews at which detailed histories of pregnancies and contraceptive practice were recorded, the wives in the Study were asked "Are you planning to have a [another] child sometime?" The five possible replies were "definitely no," "probably no," "undecided," "probably yes," and "definitely yes."

In Table 13 the percentage distribution of replies is shown for mothers of one or two children in planned families, according to the summary index of economic tension of the wife, husband, and couple. The data are shown specific for number of live births on the assumption that plans for having another child depend to an important extent upon the number of children the couple already has. This assumption is borne out by Table 13. The proportion of wives stating that they are planning to have another child ("probably yes" and "definitely yes" combined) is rather consistently higher for mothers of one child than for mothers of two children. Within neither group, however, does the planning of additional children appear to have any systematic relation to the summary index of economic tension of the wife, husband, or couple.

In general, a factor to be considered is the probability of a two-way relation between fertility and differences between actual and desired levels of living. On the one hand, the desire for higher level of living may prompt family limitation. On the other hand, couples with large families probably tend to *need* higher incomes and larger houses. To the extent that this is true, this latter factor would tend to bring a direct relation between size of family and percentage difference between actual and desired incomes, rental values, etc. It seems probable that this is the factor of chief importance in relationships of precisely this type among couples classified as "excess fertility" and in the total sample regardless of fertility-planning status. This factor should be of considerably less importance among

Table 13. Percentage distribution of "planned families" with one and two live births by wife's statement about plans to have another child sometime, by summary index of economic tension of the wife, husband, and couple.

SUMMARY INDEX OF ECONOMIC TENSION	WIFE'S REPLY TO QUESTION: "ARE YOU PLANNING TO HAVE ANOTHER CHILD SOMETIME?"									
	Couples With One Live Birth					Couples With Two Live Births				
	Number of Couples	Per Cent Replying			Number of Couples	Per Cent Replying			Total	"Yes" ^b
		"No" ^a	"Undecided"	"Yes" ^b		"No" ^a	"Undecided"	"Yes" ^b		
<i>Wife</i>										
Under 50 (High)	42	59.5	4.8	35.7	95	69.5	14.7	15.8	100	15.8
50-59 (Medium)	56	62.5	25.0	12.5	66	75.8	6.1	18.2	100	18.2
60+ (Low)	66	57.6	6.1	36.4	77	67.5	16.9	15.6	100	15.6
<i>Husband</i>										
Under 50 (High)	54	64.8	7.4	27.8	76	67.1	11.8	21.1	100	21.1
50-59 (Medium)	34	50.0	11.8	38.2	79	64.6	12.7	22.8	100	22.8
60+ (Low)	76	60.5	15.8	23.7	83	79.5	14.5	6.0	100	6.0
<i>Couple</i>										
Under 50 (High)	40	65.0	5.0	30.0	85	65.9	14.1	20.0	100	20.0
50-59 (Medium)	58	51.7	27.6	20.7	61	78.7	9.8	11.5	100	11.5
60+ (Low)	66	63.6	3.0	33.3	92	69.6	14.1	16.3	100	16.3

^a "Definitely no" or "probably no."

^b "Definitely yes" or "probably yes."

planned families, but even among these it probably operates to some extent and may serve to wipe out or to override inherent relationships in the other direction, i.e., family limitation as a result of desire for higher level of living. In general, the results of the analysis offer little support for the hypothesis, but the measures of economic tension are not sufficiently adequate to afford a good test of the hypothesis.

II. INCOME CHANGES

When the Indianapolis Study was being planned provisions were made to record histories of employment, occupation, and earnings of the husband in the hope that they could be related in time to histories of contraception and pregnancy which were also recorded in detail. The data were collected but the sample proved to be far too small to warrant temporal analyses of the type envisioned.

Although not utilized in detail, materials of the above type may be used for classifying couples according to trend of husband's average annual earnings since marriage. In part, the data were coded in the form of percentage increase or decrease from the first to second and from second to third period of married life. The periods were slightly over four years in duration, since all couples were married 12-15 years. It should also be noted that since the Study is restricted to couples married during 1927-1929, the first period included both pre-depression and depression years for most of the couples. However, some couples had as much as three more years of prosperity than others did in this first period.

Among the "number and spacing planned" couples the fertility rate *increases* rather sharply with percentage increase of husband's average annual earnings from the first to the second period of married life. This fertility rate extends from only 82 for 116 couples experiencing *decreases* of 15 per cent or more to 129 for 123 couples experiencing *increases* of 15 per cent or more.⁹

⁹ The data relating to percentage changes from the first to the second period
(Continued on page 190)

PER CENT CHANGE HUSBAND'S EARNINGS FIRST TO SECOND PERIOD	PER CENT CHANGE HUSBAND'S EARNINGS SECOND TO THIRD PERIOD				
	All Couples	Increase 50+ Per Cent	Increase 15-49 Per Cent	Increase 0-14 Per Cent	Decrease (Any)
CHILDREN EVER BORN PER 100 COUPLES					
ALL COUPLES	106	98	106	118	116
Increase 15+	129	118	128	146	*
Increase 0-14	118	*	97	124	*
Decrease 1-14	93	78	86	100	*
Decrease 15+	82	84	100	*	*
NUMBER OF COUPLES					
ALL COUPLES	403 ^a	137	142	92	31
Increase 15+	123	38	43	24	18
Increase 0-14	96	14	39	42	1
Decrease 1-14	67	23	21	20	3
Decrease 15+	116	62	39	6	9

* Rate not shown if based on fewer than 20 cases.

^a Includes 1 case husband's income unknown.

Table 14. Children ever born per 100 couples of "number and spacing planned" status, by percentage increase in husband's earnings from the first to the second and from the second to the third period of married life.

However, the opposite type of relation is found when changes in husband's earnings from the second to the third period are considered. The fertility rate is 116 for 31 couples suffering decreases and about the same (118) for 92 couples with stationary incomes or with increases of less than 15 per cent. It drops to 106 for 142 couples with increases of 15-49 per cent and to 98 for 137 couples with increases of 50 per cent or over.¹⁰

As indicated in Table 14 the *direct* relation of fertility to percentage increase in husband's earnings from the first to the second period persists when the percentage change from the second to the last period is held virtually constant. Likewise, fit the economic security hypothesis and the social mobility hypothesis for downwardly mobile couples. They fit the economic tension hypothesis if economic tension is interpreted as need. They are contrary to the mobility hypothesis for upwardly mobile couples. See Section III for statement of mobility hypothesis.

¹⁰ The data on percentage changes of earnings from the second to the third period fit the social mobility hypothesis. They fit the economic tension hypothesis if tension is interpreted as ambition. They are not necessarily contrary to the economic security hypothesis because couples experiencing the largest *percentage* increase from the second to the third period may tend to be those with lowest incomes during the second period.

the *inverse* relation of fertility to percentage increase of husband's earnings from the second to the third period of married life tends to persist when percentage change from the first to the second period is held virtually constant.

It should be emphasized that changes in income might not be expected to operate always in the same direction in so far as their relation to fertility is concerned. Couples "on the make" might be expected to attach higher values to "getting ahead" than to "having a family." For other couples an increase in income might be sought mainly to implement desires to have a family. It might serve to strengthen feelings of "economic security" which appear to be positively associated with fertility among "number and spacing planned" couples.¹¹

It is also apparent that the percentage changes in husband's earnings from the first to the second and from the second to the third period of married life reflect the fact that 1927-1941 included in succession pre-depression, depression, economic recovery, and defense boom periods. Some 45 per cent of the "number and spacing planned" couples suffered decreases in husband's earnings from the first to the second period of married life. Only about 8 per cent experienced decreases from the second to the third period. Furthermore, it is apparent from the lower part of Table 14 that couples suffering *large percentage decreases* in income from the first to the second period are unusually well represented among those registering *high percentage increases* in income from the second to the third. It will also be noted that these are the couples that are characterized by relatively low fertility. The highest fertility rate represented in Table 14 is that for couples reporting income increases of 15 per cent or more from the first to the second period and maintaining this income or increasing it by less than 15 per cent from the second to the third period.

Table 15 presents number of couples, number and percent-

¹¹ Kiser, Clyde V. and Whelpton, P. K.: *Social and Psychological Factors Affecting Fertility*. xi. The Interrelation of Fertility, Fertility Planning, and Feeling of Economic Security. The Milbank Memorial Fund *Quarterly*, January, 1951, xxix, No. 1, pp. 41-122 (Reprint pp. 467-548).

age of planned families, and the fertility of planned families, according to actual level of the husband's income during the three successive periods of married life. Since the fertility rates relate to the total group of planned families, they are higher than those in Table 14 for the "number and spacing planned" couples alone. Despite the inclusion of all planned families the numbers in certain crucial categories are too small to yield dependable results. Thus only 24 planned families fell into the group with "low" earnings in the first period, "medium" earnings in the second period, and "high" earnings in the third period. (As before, these labels represent \$2,400 and over, \$1,600-2,399, and under \$1,600, respectively). The proportion of planned families is relatively high (62 per cent) but the fertility of the planned families that progressively increased their income is relatively low (125). For comparison, the fertility rate is 185 for 53 couples in the "high" income group in all three periods, 128 for 58 couples in the "medium" income group in all three periods, and 141 for 123 couples in the "low" income class in all three periods. The lowest fertility rate of all, 79, was found for 29 couples who were in the "medium" income category in the first period, dropped to "low" status in the

Table 15. Percentage of all couples that are "planned families" and fertility rates among "planned families," by level of the husband's earnings during three successive periods since marriage.

FIRST PERIOD	SECOND PERIOD	THIRD PERIOD	NUMBER OF COUPLES ¹	ALL PLANNED FAMILIES		
				Number	Per Cent of All Couples	Fertility Rate
Income Level						
High	High	High	91	53	58.2	185
Medium	Medium	Medium	125	58	46.4	128
Low	Low	Low	397	123	31.0	141
Low	Medium	High	39	24	61.5	125
Medium	High	High	64	37	57.8	197
Low	Medium	Medium	76	32	42.1	181
Medium	Medium	High	80	33	41.3	115
Low	Low	Medium	261	118	45.2	140
Low	Low	High	33	20	60.6	130
Medium	Low	Medium	76	29	38.2	79
Medium	Low	Low	63	20	31.7	220

¹ Groups with fewer than 20 cases not shown.

second, and advanced again to "medium" status in the third period.

Like the previously considered data on percentage increases in husband's earnings, increases in actual levels of husband's earnings from the second to the third period of married life are associated with low fertility. As indicated in the middle columns of Table 16 fertility rates for couples with income rising from second to third period are consistently lower than those for couples maintaining the same income levels during these periods. They are lower than those for either the "destination" or "origin" controls. Again, however, this does not hold for income changes from the first to the second period nor for those from the first to the third period. It is difficult to interpret the data without taking into account the time at which the planned births occurred in relation to the income changes. The sample is too small to permit analysis in the desired refinements.

This brief analysis of income changes subsequent to marriage is enough to show that no simple inference about economic

Table 16. Number of children ever born per 100 planned families, by level of husband's earnings in two of the three periods of married life.

LEVELS OF HUSBAND'S EARNINGS IN TWO PERIODS	TWO PERIODS CONSIDERED					
	First and Second Periods		Second and Third Periods		First and Third Periods	
	Number of Couples	Fertility Rate	Number of Couples	Fertility Rate	Number of Couples	Fertility Rate
ALL COUPLES	608*	148	608*	148	608*	148
Same Income Group						
High	56	182	99	195	79	171
Medium	93	123	95	149	88	114
Low	261	140	147	152	127	142
Rising Income						
Medium to High	38	200	74	126	74	155
Low to Medium	60	157	147	128	150	149
Low to High	9	*	33	127	53	147
Declining Income						
High to Medium	24	146	4	*	8	*
Medium to Low	53	134	8	*	22	209
High to Low	13	*	0	*	6	*

* Includes one case unknown earnings.

* Rate not shown if based on fewer than 20 cases.

tensions or aspirations motivating fertility restriction can be based on income data alone. There is some slight evidence favoring such an hypothesis, but on balance the data fail to support it.¹²

III. OCCUPATIONAL CLASS CHANGES

Hypotheses about social mobility after marriage are based upon a familiar line of argument. The expense and responsibility of rearing children, especially if undertaken at an early age, are handicaps to social advancement since they divert time, energy, and money into family care which might otherwise be devoted to further education, apprenticeship, and other activities facilitating upward social mobility. In some cases they may even force downward mobility. Couples successful in improving their social position subsequent to marriage would be selected, then, from those whose aspiration for advancement is implemented by restricted fertility. Downwardly mobile couples would include some whose lack of fertility control was either a causal factor in their demotion or concomitant with other disabilities, and some whose downward mobility motivated fertility restriction, i.e. who used fertility restriction as a means of resisting decline in their standard of living. This line of argument is presumably valid regardless of temporary fluctuations in economic conditions, but it seems particularly applicable to couples who early in marriage experienced an economic depression in which opportunities for advancement were restricted and in which threats to status were real.¹³

¹² Consideration of additional data, such as the pattern of family growth or age at marriage or husband's occupation, might lead to some plausible explanation of the apparent paradox in the relation of planned fertility to income change between different periods. Because of the conjectural nature of such explanations, however, it was judged sufficient to illustrate the possibilities with the analysis for occupational changes which is presented in the Appendix. Detailed analysis for simultaneous classification by occupational changes and income changes after marriage was not possible because of the small size of the sample, but rough classification by these criteria did show a differentiation of fertility behavior which appears quite consistent with the interpretations given in the Appendix. (See Riemer, R.: *Social Mobility and Mobility Aspiration in Relation to Fertility Planning and Fertility* (Ph.D. dissertation, University of Michigan, 1953), pp. 261-265).

¹³ That family responsibilities may stimulate the ambition and energy of some men so that they achieve more than they would without the "handicap" of a family; (Continued on page 195)

In general, total fertility is inversely related to socio-economic status because knowledge about contraception and ability to make use of it effectively are directly related to socio-economic status. And in general, socially mobile persons are subject to some influence from their original status level and some acculturation to the new status level. However, for upwardly mobile persons, selection for low fertility and psychological orientation toward the higher status would minimize the influence of the background status level. Upwardly mobile couples thus would be likely to resemble the nonmobile couples at their destination much more than the nonmobile couples at their origin with respect to fertility control and fertility. For downwardly mobile persons, on the other hand, selection and psychological orientation pull in opposite directions and acculturation would be minimized. Selection is partly for inability to control fertility, but for some couples strenuous efforts at fertility control in order to maintain the old standard of living would keep their fertility low. Thus downwardly mobile couples may be quite heterogeneous, but taken as a group their fertility behavior is likely to be intermediate between that of the nonmobile couples at their origin and their destination.¹⁴

The hypotheses are:

a. Couples upwardly mobile after marriage have:

(1) smaller families than do nonmobile couples at their level of origin and families as small as or smaller than those of nonmobile couples at their level of destination.

(2) a larger proportion of successful fertility planners than

that the desired higher position may be perceived as a way of life involving the presence of several children rather than merely a more expensive personal standard of living; that family building may be undertaken as a means of validating a higher status once it has been achieved—these and similar arguments did not enter into the formulation of the hypotheses. Such factors were considered as highly individual in their reference and therefore likely only to weaken slightly, but not to override, the very general relationships proposed, particularly in a period such as the 1930's. The results of the present analysis suggest that positive desires for children may have been underrated. See Appendix.

¹⁴ Kantner's hypothesis, that downwardly mobile couples have fertility even lower than nonmobile couples at the level of origin, does not allow for failure in fertility control as a selective factor. Such selection may have contributed to his finding so many exceptions to his hypothesis about total fertility among downwardly mobile couples. Kantner and Kiser, *op. cit.*

do nonmobile couples at their level of origin, and a proportion of successful fertility planners as large as¹⁵ or larger than do nonmobile couples at their level of destination.

(3) smaller *planned* families than do nonmobile persons at either their level of origin or level of destination.

b. Couples downwardly mobile after marriage have:

(1) families of size intermediate between those of nonmobile couples at their levels of origin and destination.

(2) a proportion of successful fertility planners intermediate between the proportions for nonmobile couples at their levels of origin and destination.

(3) smaller *planned* families than do nonmobile couples at either their level of origin or level of destination.

These hypotheses are quite general and simple. The limited range of socio-economic status in the Indianapolis Study sample would be expected to attenuate the relationships¹⁶ but not

¹⁵ In the absence of precise status and mobility categories, it does not seem likely that the upwardly mobile couples will be *more* successful in fertility planning or that they will have a lower total fertility than the nonmobile couples at their level of destination. For example, in using shifts between broad occupational classes as the indication of mobility, many couples at the upper status levels who actually improve their social positions considerably after marriage are classified as "nonmobile" because they remain in the same broad occupational category; if upward mobility is associated with low fertility, these cases would tend to depress the fertility of the nonmobile groups. An additional consideration is that talent and strength of ambition among upwardly mobile persons can balance some minor failures in control of fertility. This latter is essentially a question of the relative importance of restricted fertility and other qualifications as criteria of selection for upward mobility.

¹⁶ The sample was limited to couples in which both husband and wife had eight years or more of education. This effectively excluded most men in unskilled occupations. The expected effects of this are: (1). Some cases of downward mobility are excluded. This is not very important for intragenerational mobility since poorly educated men would not have high status jobs at any time, but it is more important in reducing the number of cases of intergenerational downward mobility. (2). Cases in which upward mobility was achieved in spite of very little education are excluded. This is of more importance for intragenerational mobility than for intergenerational mobility since occupational status at marriage is likely to be closely related to education, and since the cases excluded are likely to be among the most extreme in their fertility behavior. (3). Insofar as the shortage of cases at the lower occupational levels requires combining of occupational categories, fertility differentials are obscured. (4). Cases with only one spouse having less than eight years of education are excluded. Most of these would be in the lower occupational categories which can't be studied adequately anyway, but the net effect of excluding even a few cases from the upper occupational categories would probably be to attenuate the hypothesized relationships.

to eliminate them. The restriction of the sample to "relatively fecund" couples would be expected to attenuate the hypothesized relationships for total fertility by eliminating cases where upward mobility was facilitated by sterility, but would not affect the hypothesized relationships for planned fertility. Some allowance for crude mobility categories has been made in the hypotheses. But no allowance can be made in the hypotheses, nor were data available for controls in the analysis, for such factors as the stage in career at which marriage takes place, the time point or period within marriage of actual shift in socio-economic status, the spacing of children in relation to status shifts, or the particular kind of social position toward which aspiration is directed.¹⁷ Tests of significance of differences were not made because of the inflation of the sample and because subgroups were so small that statistical significance could not be expected.

Occupational Changes After Marriage. The indicators for social mobility after marriage available to test these simple general hypotheses were income changes and occupational changes. The income data are reported in Section II. For analysis of occupational mobility, husband's first job after marriage and his longest job in 1940, grouped into major occupational categories,¹⁸ were cross-tabulated and the proportion of successful fertility planners¹⁹ and the average number of living children²⁰ computed for husbands with each combination of occupations.

¹⁷ See later section on implications for further research.

¹⁸ Professional-proprietor, clerical-sales, skilled manual, semi-skilled and unskilled manual and service work. All grades below skilled manual work had to be combined because so few cases were available.

¹⁹ All deliberately childless couples and those with children whose every pregnancy was planned or whose last pregnancy was planned, i.e. "number and spacing planned" and "number planned" combined. In addition, five childless couples from the "quasi-planned" and "excess fertility" groups whose unplanned pregnancies resulted in wastage are included with successful planners since they had no unplanned births.

²⁰ Living children rather than live births were used as the measure of fertility for reasons not relevant to this report. Since only 112 live births to 102 couples of the total 1,444 did not survive until the interviews, the results would differ very little had live births been used.

Although these "detailed" tabulations offered some support for the hypotheses, there were too many irregularities to consider the pattern very clear,²¹ and several cells in the 4×4 tables had too few cases for proportions and averages to be computed. It seemed likely also that uncontrolled variation in the stage of career represented by the first occupation after marriage and impure mobility categories might be attenuating the relationships too much, and/or that the relationship of occupational mobility after marriage to fertility behavior in a 12–15 year period might not be strong enough to show up consistently in such fine divisions. By utilizing a simple white collar-manual or "head"–"hand" work dichotomy, the mobile categories are confined to husbands who made perhaps the most difficult and crucial shift in occupational level, and the number of cases in each cell is increased. The results are shown in Table 17.

The hypotheses about success in fertility planning are supported fairly well by Table 17. Upwardly mobile couples were to a larger extent successful planners (47 per cent) than were couples nonmobile at the manual work level (34 per cent), and their success approached that of the couples nonmobile at the white collar level (51 per cent). The proportion of successful planners among downwardly mobile couples is intermediate (37 per cent) between that of the nonmobile couples at their levels of origin (51 per cent) and destination (34 per cent).²²

The hypotheses about family size of the upwardly mobile

²¹ Identical tabulations for husband's 1940 occupation against his father's occupation while he was a child—similar to Kantner's tabulations—show that the pattern is somewhat clearer for intergenerational mobility. Both sets of tables are given in Riemer: *op. cit.* Appendix B, Tables B-11, B-12, B-17, and B-18.

²² Chi-square for the distribution of planning success is significant at the 0.1 per cent level. Obviously the difference between 34 per cent and 37 per cent is not significant however.

This does not conflict with the finding of Kantner and Kiser, *op. cit.*, that intergenerationally upwardly mobile couples are less effective in contraceptive practice than nonmobile couples at their level of destination. If only childless couples and those who planned every pregnancy are considered to be "successful" fertility planners—very nearly the definition used by Kantner and Kiser—the percentages for intragenerational mobility categories are: nonmobile "head" workers, 37 per cent; upwardly mobile, 29 per cent; downwardly mobile 23 per cent; nonmobile "hand" workers, 21 per cent.

couples are not so well supported. Whereas for all upwardly mobile couples the average number of living children (1.82) was well below the average for couples nonmobile at the "hand" work level (2.24), it was well above the average for couples nonmobile at the "head" work level (1.66). Among all planned families, the upwardly mobile couples have about as many children (1.44) on the average as couples nonmobile at the "hand" work level (1.46), and the proportion of planned childless among the upwardly mobile is the lowest for any group. In part this is due to the extremely and uniformly low total and planned fertility and the high rate of childlessness among clerical workers²³ who constituted a large proportion of

Table 17. Family size and success in fertility planning by intragenerational mobility.¹

DESCRIPTION	MOBILE		NONMOBILE	
	Upwardly, from "Hand" to "Head" Work	Downwardly, from "Head" to "Hand" Work	"Head" Work	"Hand" Work
TOTAL NUMBER OF COUPLES ²	170	87	558	625
Average Number of Living Children	1.82	1.95	1.66	2.24
Per Cent Successful Planners ³	47.1	36.8	50.9	34.1
Number of Successful Planners	80	32	284	213
Average Number of Living Children	1.44	1.38	1.34	1.46
Per Cent Childless	17.5	21.9	24.6	20.2
Number of Successful Planners with Children	66	25	214	170
Average Number of Living Children	1.74	1.76	1.78	1.83

¹ Mobility determined by comparison of husband's first occupation after marriage with his longest occupation in 1940. "Head" occupations include professional and semi-professional; proprietor, manager, and official; and clerical and sales occupations. "Hand" occupations include craftsmen and foremen, operatives, service workers, laborers, and (for first occupation only) farmers and farm laborers.

² Cases omitted: husband's 1940 occupation unknown or unemployed (3 cases); husband's 1940 occupation farmer (1 case).

³ Childless, planned every pregnancy, or planned last pregnancy.

²³ Cf. Kantner and Kiser, *op. cit.*, on the low fertility of clerical workers.

the nonmobile white collar workers. But the pattern is only very slightly improved by omitting clerical workers from both groups. There is no evidence here that upwardly mobile couples plan smaller families than nonmobile couples at their levels of either origin or destination.

The fertility of the downwardly mobile couples fits the hypotheses somewhat better. The average size for all families is between that for nonmobile couples at their levels of origin and destination and the average size of planned family is about the same as that of nonmobile couples at the level of origin.

An outstanding feature of Table 17 is the extent to which success in planning and rate of childlessness account for the variation in family size. The average size of families planned with children varies only from 1.74 to 1.83.

Occupational Changes Over Three Time Points. Clearly,

Table 18. Scheme of presentation of data by intergenerational and intra-generational mobility in tables following.

HUSBAND'S 1940 OCCU- PATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
"Head"	Group 1 Nonmobile "Head" Work at All Three Time Points	Group 2 Upwardly Mo- bile After "Temporary" Intergenera- tional Down- ward Mobil- ity	Group 3 Upwardly Mo- bile Before Marriage	Group 4 Upwardly Mo- bile After Marriage
"Hand"	Group 5 Downwardly Mobile After Marriage	Group 6 Downwardly Mobile Before Marriage	Group 7 Downwardly Mobile After "Temporary" Intergenera- tional Up- ward Mobil- ity	Group 8 Nonmobile. "Hand" Work at All Three Time Points

classification according to major occupational shifts after marriage does not yield homogeneous groups. In terms of the social mobility framework, perhaps the most important variable to be controlled is premarital socio-economic background. This can be held roughly constant by dichotomizing each group according to whether the husband's²⁴ father was a white-collar or a manual worker.²⁵ In effect this yields a classification according to socio-economic level of the husband at three time points: in childhood (6-16 years of age), at marriage, and in 1940 (11-14 years after marriage). Table 18 shows how the categories are arranged and labeled, and Tables 19-23 present the data.

Subdividing intragenerational mobility categories by status of husband's father offers additional support to hypotheses *a(1)* and *b(1)* about total fertility (*see* Table 19). The men who were upwardly mobile before marriage have a much

Table 19. Average number of living children in all families by mobility categories.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
"Head" "Hand"	AVERAGE NUMBER OF LIVING CHILDREN			
	1.76	1.69	1.62	1.82
	1.95	1.97	2.12	2.31
	NUMBER OF COUPLES ¹			
"Head"	268	52	253	110
"Hand"	20	130	58	462

¹ Cases omitted: 87 cases with father's occupation unreported and 4 cases with husband's occupation in 1940 unemployed, in agriculture, or unknown.

²⁴ Classification by wife's father's occupation would give similar results, but would be more awkward to handle.

²⁵ Fathers who were farmers or farm laborers are classified as "hand" workers. Eighty-seven cases with father's occupation unreported are omitted.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
	"Head"	50.4	65.4	49.8
"Hand"	30.0	38.5	37.9	32.0

Table 20. Successful fertility planners as a per cent of all families, by mobility categories.¹

¹ For percentage bases, see Table 19.

smaller average family size (1.62) than men in "head" work at all three time points (1.76), with whom they were previously grouped as "nonmobile." Men from manual work backgrounds who achieved their "head" work status only some time after marriage have somewhat larger families than the other upwardly mobile groups, but their average family size (1.82) is only slightly larger than the average for nonmobile "head" workers (1.76). With the downwardly mobile also, classification by father's occupational level strengthens the hypothesized pattern. Men only "temporarily" in white collar work at marriage, i.e. who later returned to the manual work status of their fathers, have somewhat more children on the average (2.12) than men whose downward mobility was from their fathers' status as well as from their status at marriage (1.95). When the men downwardly mobile before marriage are separated from those at the "hand" work level at all three time points, their fertility is also seen to differ (average 1.97 and 2.31 children respectively).²⁶

The data on planning success (*see* Table 20) do not support

²⁶ It may be noted that the omission from these tables of couples who did not report occupation of husband's father tends to reinforce further the hypothesized relationships by excluding some contradictory cases. Of couples included in Table 17 but excluded from Table 19, the nonmobile "head" workers had very low fertility (33 cases, average 1.27 living children), the upwardly mobile very high fertility (8 cases, average 2.62 children), and the downwardly mobile very low fertility (9 cases, average 0.89 children). Only the nonmobile "hand" workers were not extreme (33 cases, average 2.27 children).

hypotheses *a*(2) and *b*(2) in all respects, but are reasonably consistent with their rationale. The high proportion of successful fertility planners among men upwardly mobile after "temporary" manual work status at marriage (65 per cent) suggests the effectiveness of the combination of white-collar background and the motivation to return to it.²⁷ On the other hand, the relatively low proportion of successful planners among men who were upwardly mobile after marriage (39 per cent) does not seriously contradict the hypothesis that they should be successful in fertility planning; considering their manual work background and their total fertility (average 1.82 children), it is evident that even those classified here as unsuccessful in planning must have been rather effective in restricting their fertility. The pattern among two of the downwardly mobile groups is in line with expectations that background status, selection, and motivation would lead to intermediate proportions of successful fertility planners. The exceptionally small proportion of successful planners (30 per cent) among men down-

Table 21. Average number of living children in successfully planned families by mobility categories.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
"Head" "Hand"	AVERAGE NUMBER OF LIVING CHILDREN			
	1.42 *	1.56 1.24	1.31 1.64	1.30 1.53
	NUMBER OF SUCCESSFUL PLANNERS			
"Head" "Hand"	135 6	34 50	126 22	43 148

* Average not shown if based on fewer than 20 cases.

²⁷ Other data on this small group support the view that it is somewhat exceptional. See Appendix for a detailed discussion of this and other groups.

wardly mobile after marriage is based on very few cases, but along with the virtual absence of childlessness (only one couple was childless), it suggests that downward mobility for this group may be due largely to early failure in fertility control.

With respect to planned fertility (*see* Table 21), father's occupation appears more significant than husband's occupation at marriage. Put in another way, the differences in average size of planned families appear to be more closely associated with intergenerational mobility than with intragenerational mobility. Intergenerationally mobile husbands who moved upward (cells 3 and 4 of top row) or downward (cells 1 and 2 of bottom row) had planned families averaging from 1.24 to 1.33²⁸ living children, whereas husbands whose 1940 occupation was at the same level as their fathers' had planned families averaging 1.42 to 1.64 living children. It should be noted that high planned fertility in the two groups in which husbands were at marriage "temporarily" working in a level different from their fathers' and their own 1940 occupational level directly contradicts hypotheses *a*(3) and *b*(3). Both groups are small and the averages are therefore probably not very stable, but additional data (*see* Appendix) support the view that these are not simply chance variations.

That differences in average size of planned family are in large

Table 22. Childless couples as a per cent of successful planners, by mobility categories.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
"Head"	20.7	11.8	27.0	23.3
"Hand"	*	28.0	9.1	16.9

* Per cent not shown if based on fewer than 20 cases.

¹ For percentage bases, *see* Table 21.

²⁸ For the six planned families among husbands downwardly mobile after marriage.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
	"Head"	"Hand"	"Head"	"Hand"
"Head" "Hand"	AVERAGE NUMBER OF LIVING CHILDREN			
	1.79	1.77	1.79	1.70
	*	1.72	1.80	1.85
	NO. OF SUCCESSFUL PLANNERS WITH CHILDREN			
"Head" "Hand"	107	30	92	33
	5	36	20	123

* Average not shown if based on fewer than 20 cases.

Table 23. Average number of living children in families planned with children, by mobility categories.

part a function of the rate of planned childlessness is seen by examining Tables 22 and 23. Among families planned with children, the total range in average size is only from 1.70 to 1.85 living children, or less than half the range for all planned families. Within this narrow range, the smallest average sizes for planned families with children and the highest rates of planned childlessness are found among the mobile groups.

Additional Control for Socio-Economic Status. Within each "head-hand" occupational sequence represented in Tables 19-23 there probably is still considerable variation in income, occupational status, prestige, and standard of living, but the numbers of cases are too small to permit much finer classification. It was thought, however, that even simple dichotomization might increase the homogeneity of groups sufficiently to yield additional insight into the relationship of social mobility and fertility. Because the summary index of socio-economic status²⁰ has been found to be so consistently related to the fer-

²⁰ For the details of construction of this index, see Kiser, C. V. and Whelpton, P. K.: Social and Psychological Factors Affecting Fertility. IX. Fertility Planning and Fertility by Socio-Economic Status. The Milbank Memorial Fund *Quarterly*, April, 1949, xxvii, No. 2.

tility variables in other analyses of these data, it was selected for this purpose. There is no definite time reference for this index of SES³⁰ so it is impossible to specify exactly what dichotomizing by SES does to the occupational and mobility categories. There are at least two effects. Subdividing by SES refines the "head-hand" classification for 1940 occupation; i.e. "head" workers in the lower SES level are likely to be clerical-sales workers or the less prosperous proprietors and professionals; "hand" workers in the upper SES level are likely to be more highly skilled workers than those in the lower SES level. Note, however, that this does not mean that the "hand" to "head" upwardly mobile in the upper SES level have moved further up the socio-economic ladder than the upwardly mobile in the lower SES level; they may have started from a higher

Table 24. Average number of living children in all families by mobility categories and summary index of socio-economic status.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
"Head" — High SES Low SES "Hand" — High SES Low SES		AVERAGE NUMBER OF LIVING CHILDREN			
		1.68	1.71	1.63	1.68
		2.56	*	1.61	1.96
		*	1.72	*	1.72
		*	2.09	2.24	2.52
		NUMBER OF COUPLES			
		245	49	204	56
		23	3	49	54
		11	43	17	118
		9	87	41	344

* Average not shown if based on fewer than 20 cases.

¹ High SES = summary index 39 or less; low SES = summary index 40 or more. For details of the construction of this index, see Kiser, C. V. and Whelpton, P. K.: Social and Psychological Factors Affecting Fertility. ix. Fertility Planning and Fertility by Socio-Economic Status. *The Milbank Memorial Fund Quarterly*, April, 1949, xxvii, No. 2.

³⁰ Its components range from years of schooling to shelter rent at interview, though it probably reflects most accurately the situation at the time of interview.

level. The division by SES also seems to select out those small groups in which occupational mobility was not accompanied by the normal changes in income or way of life, or in which conflicting forces or exceptional circumstances were operating, and thus helps to delimit the variety of mobile groups for future investigation. However, because these groups are so small and the interpretation of their characteristics are so speculative, detailed discussion of them is placed in the Appendix.

Tables 24-28 repeat Tables 19-23 with each category dichotomized on the summary index of socio-economic status.

From Table 24 it will be seen that within the upper SES level average size of family was uniformly low, regardless of occupational level or mobility category, except that men upwardly mobile before marriage had exceptionally low fertility (average 1.63 children). This mobility category shows the same low fertility (average 1.61 children) in the lower SES level. Men in all other categories at the lower SES level had considerably more children on the average, though both upwardly and downwardly mobile groups had lower fertility than the nonmobile groups.

That the lower total fertility of the upper SES groups is in large measure a function of better fertility control may be seen from Table 25 which presents the proportion of successful

Table 25. Successful fertility planners as a per cent of all families, by mobility categories and summary index of socio-economic status.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
"Head" — High SES		53.1	67.4	53.9	46.4
Low SES		21.8	*	32.6	31.5
"Hand" — High SES		*	53.5	*	39.0
Low SES		*	31.0	29.3	29.6

* Per cent not shown if based on fewer than 20 cases.

¹ For percentage bases, see Table 24.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
<div>"Head" — High SES Low SES</div> <div>"Hand" — High SES Low SES</div>		AVERAGE NUMBER OF LIVING CHILDREN			
		1.45 * *	1.60 * 1.48 1.04	1.35 * * *	1.11 * 1.28 1.65
		NUMBER OF COUPLES			
		130 5 1	33 1 23 27	110 16 10 12	26 17 46 102

* Average not shown if based on fewer than 20 cases.

Table 26. Average number of living children in successfully planned families by mobility categories and summary index of socio-economic status.

planners in each group. In each occupational and mobility group there is a larger proportion of successful planners in the upper than in the lower SES level, and every SES group has more successful planners than any lower SES group.³¹ Within each SES level the husbands who were "head" workers in 1940 were more successful planners than those from the same origins who ended up in "hand" occupations in 1940, but these differences are much smaller than those for the combined SES groups in Table 20. By mobility categories, the differences that remain within each SES level generally tend to support hypotheses *a*(2) and *b*(2), but in several instances the differences are so small and based on such small numbers that they clearly are not significant.

Difference between background status as indicated by fa-

³¹ This is true even for the cells based on too few cases to present the figures. The extent to which upper and lower SES levels differ in fertility-planning success suggests that this composite index may be a fairly good index of achievement and control over the environment, both economic and non-economic.

ther's occupation and 1940 occupational status appeared to be the most significant factor affecting average size of planned family when the summary index of SES was not employed (Table 21). But when SES, as well as planning success, is held constant, the picture is more complicated, even allowing for the reduced reliability of averages and percentages because of small numbers of cases (*see* Table 26). Within the upper SES level, whereas average size for all families and proportion of successful fertility planners varied little with occupational level or mobility status, average size of planned family varies considerably. Both the smallest (1.11) and the largest (1.60) averages are among upwardly mobile couples, and the nonmobile "head" workers planned larger families on the average (1.45 children) than the nonmobile "hand" workers (1.28 children). In the lower SES level the only two figures available show that successful planners among men downwardly mobile before marriage restricted their fertility very severely (average 1.04 children), and that the nonmobile "hand" workers planned larger families (1.65 children) than any other group at either SES level.

Rates of planned childlessness (*see* Table 27) tend, as before, to account for the extremes in average size of planned family. The average size of successfully planned families varies

Table 27. Childless couples as a per cent of successful planners, by mobility categories and summary index of socio-economic status.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
"Head" — High SES		18.5	9.1	26.4	26.9
Low SES		*	*	*	*
"Hand" — High SES		*	21.7	*	23.9
Low SES		*	33.3	*	13.7

* Per cent not shown if based on fewer than 20 cases.

¹ For percentage bases, *see* Table 26.

less by social mobility status when childless couples are excluded than when they are included (compare Tables 26 and 28).³²

From Tables 24-28 it appears that low SES couples are less successful in fertility planning and therefore have more children than upper SES couples. In fact, the summary index of SES accounts for far more variability in total fertility than does occupational mobility.³³ But when only planned families are considered, in some occupational mobility groups the upper SES couples seem to plan slightly larger families and to remain deliberately childless less frequently than lower SES couples; in other groups the reverse is the case.³⁴

One of the main reasons for dichotomizing mobility categories by SES was to get more highly differentiated groups for analysis. Unfortunately most of the groups are too small for reliable comparison. Plausible interpretations can be given, however, by using additional data (husband's age at marriage, pattern of family growth in the first four years of marriage, and statements of the size of family desired at marriage) partially to reconstruct the pattern of experiences for each group. Because of the frankly speculative nature of these interpretations, they are presented in the Appendix.

Summary. The proportions of successful fertility planners and average family sizes by broad categories of occupational mobility after marriage are in general consistent with the notions that upward mobility is at the expense of some deliberate fertility restriction and that the downward mobile have inter-

³² This is true within each SES level even if averages based on as few as ten cases are included (see Table 29 in Appendix).

³³ On the overriding importance of SES for other hypothesized variables, see Westoff, C. F. and Kiser, C. V.: *Social and Psychological Factors Affecting Fertility*. xxi. An Empirical Re-Examination and Intercorrelation of Selected Hypothesis Factors. *The Milbank Memorial Fund Quarterly*, October, 1953, xxxi, No. 4, pp. 421-435 (Reprint pp. 953-967).

³⁴ Of six possible comparisons by mobility categories, in four the upper SES group had higher planned fertility than the corresponding lower SES group. The two instances of the reverse are for men upwardly mobile after marriage and for nonmobile "hand" workers, the two groups in which the hold on upper SES status is probably most tenuous and the need for fertility restriction correspondingly greatest.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
		AVERAGE NUMBER OF LIVING CHILDREN			
"Head" — High SES		1.77	1.77	1.83	*
Low SES		*	*	*	*
"Hand" — High SES		*	*	*	1.69
Low SES		*	*	*	1.91
		NUMBER OF COUPLES			
"Head" — High SES		106	30	81	19
Low SES		1	0	11	14
"Hand" — High SES		5	18	8	35
Low SES		0	18	12	88

* Average not shown if based on fewer than 20 cases.

Table 28. Average number of living children in families planned with children, by mobility categories and summary index of socio-economic status.

mediate planning success and moderate fertility. They failed to show, however, that either the total or planned fertility of upwardly mobile couples is as low as that of couples nonmobile at the white collar level after marriage. The specific hypotheses proposed are supported much better when mobility before marriage is taken into account by using occupation of husband's father as an index of social status during the husband's childhood. It appears that deliberate childlessness, rather than small families, accounts for much of the low planned fertility of mobile couples.

An effort to get more homogeneity within groups and further differentiation of kinds of mobility was made by sub-classifying according to summary index of SES. By comparing the differentiated groups on a variety of items in their marital histories, some plausible interpretations were derived for the interrelationships of mobility, inferred mobility aspiration, and fertility in the various groups. Their value lies in their possible

usefulness in devising more adequate hypotheses for future studies.

These interpretations suggest that although the upwardly mobile strive for fertility control, they do not all strive for extreme fertility restriction. Very small planned families and childlessness are associated especially with those who may be judged to have a relatively disadvantaged position in the struggle for advancement or in maintaining their standard of living, whether their disadvantages derive from childhood background or from personal disabilities. Moderately large planned families and a low rate of childlessness appear to be associated with a relatively advantageous position in terms of childhood background and personal ability. There is no evidence that low fertility of the upwardly mobile is generally due to late marriage. Downwardly mobile couples seem to be selected for initial lack of fertility control. Included among the downwardly mobile, however, are not only couples of inferior abilities and victims of economic forces who are striving to maintain their previous standard of living, but some few couples who apparently plan large families without concern over their status.

IV. IMPLICATIONS FOR FURTHER RESEARCH

The foregoing analyses of economic tension and social mobility in relation to fertility behavior are believed to have implications for the research design of future studies.

The hypothesis that social mobility is associated with restriction of fertility now appears too general and too simple. Refinements in two directions are indicated:

1. Consideration of the time sequence—the time at which shifts in socio-economic status occur, the stage of career at which marriage takes place, the timing of births within marriage in relation to status changes—is necessary in order to assess the significance of fertility as a selective factor in upward and downward mobility, and conversely, to assess the degree to which fertility reflects the socio-economic status of child-

hood and youth, acculturation to a new status, or the severity of the struggle to improve or maintain status at various stages in married life.³⁵

2. Aspirations with respect to socio-economic status and family building need explicit investigation, with due allowance for variety of goal orientations and the modification of desires with time and experience. The hypothesis that upwardly mobile persons are generally characterized by an attitude configuration including disinterest or actual deprecation of children clearly is much too simple.³⁶ If some persons who aspire to higher social status see children only as a handicap or an embarrassment, others apparently view children as an integral part of the goal they seek. Although they may delay the first child and limit the family size, these actions may be motivated as much by concern for the children as for their own comfort and pride of status. Furthermore, discrepancy between actual and desired standards of living after 12-15 years of marriage can be regarded as motivation for fertility restriction in the preceding years only by the implicit assumption that feeling of economic tension or economic aspiration is a stable psychological characteristic which persists relatively unchanged throughout changing circumstances. Basic attitudes toward prestige, money, and children are probably fairly stable, but a family is built up through a series of more or less deliberate decisions in which long and short term goals and needs must be balanced. Not only basic attitudes or goal orientation enter

³⁵ For instance, because childlessness, rather than small size of families planned with children, appears to be characteristic of upwardly mobile couples, particular attention is needed to the timing of the deliberately planned first births among upwardly mobile couples.

³⁶ An attempt to discover such an attitude configuration in the data of the Indianapolis Study may have failed because available measures of the attitudes were inadequate and/or because the assumption of stability of attitudes over time—an assumption forced by the nature of the data—was unjustified. But probably it failed also because the hypothesis implied too much homogeneity of value systems among mobile persons. In the analysis referred to, social mobility (measured in several different ways) showed no consistent relationship with discrepancy between actual and desired income or with summary indices of economic tension, the "feeling that children interfere with personal freedom," or "interest in and liking for children." For a detailed account, see Riemer, *op. cit.*, especially Chapter 6.

into the decision to have a child or not to have a child at any particular time, but also considerations of the immediate economic situation and the couple's outlook for the future, and these are notoriously affected by fluctuations in the community economy as well as by realization or disappointment of personal expectations. Experiences with each successive childbirth and the number of years remaining for postponement of desired births are also variable factors in the continual reassessment of how many children there will be and how they will be spaced.³⁷ In other words, new hypotheses must recognize that upwardly mobile persons may be oriented toward different goals and have different perceptions of the means to those goals, and they must also allow for changes in aspiration with changes in status, experience with children, and changes in social conditions in general.

The main requirements for a research design that will permit better investigation of the interrelationships of social mobility, mobility aspiration, and fertility behavior are:

1. A more adequate classification of status for determining social mobility. The Edwards (U.S. Census) classification of major occupational categories is unsatisfactory for the purpose, particularly for the non-manual categories, since each of the professional, proprietor-manager-official, and clerical-sales categories encompasses a very wide range of skill, income, and prestige, and these major categories overlap each other greatly, and also overlap to some extent the skilled manual category.

³⁷ Even if their reports of the number of children desired at marriage can not be accepted at full face value, discrepancies between the numbers of children they report having wanted at marriage and the smaller numbers actually born in 12-15 years of marriage indicate that many couples are aware of having changed their plans. The facts that only about one-fourth of all conceptions occurred when contraception had been discontinued in order to conceive, and over half occurred in spite of contraception (see Whelpton, P. K. and Kiser, C. V.: *Social and Psychological Factors Affecting Fertility*, vi. *The Planning of Fertility*. The Milbank Memorial Fund *Quarterly*, January, 1947, xxv, No. 1, Table 4) but only 17 per cent of all pregnancies were reported as unwanted (*ibid.*, pp. 106-107), also strongly suggest that desires are adjusted to changing reality. There is also fairly strong circumstantial evidence that such attitudes as resentment and feelings of restriction and deprivation due to the expense and responsibility of child care develop strength with increasing family size, even when the last births are deliberately planned. (See Riemer, *op. cit.*, Chapter 8; also an article in preparation for this series.)

With such a classification, social mobility can be determined only very crudely. A more detailed occupational classification using criteria of educational prerequisites, responsibility, power over subordinates, and average income, or based on public judgments of relative prestige, must be developed.³⁸

2. More adequate measures of psychological factors. For evaluating the influence of ambition for higher status on fertility, it is necessary to explore couple by couple their perceptions of present status and desired future status, from the standpoints of economic position, prestige, and way of life, and their perceptions of the efforts and conditions necessary to realize their ambitions, with particular reference to fertility control.

3. A sample, or a series of samples, which eventually will cover the full ranges of status, of mobility, and of aspirations.

4. Either complete histories or some form of time sampling to permit tracing changes. It is necessary to note how ambitions and perceptions change with time, as hopes are realized or frustrated, as position changes, as attempts at fertility planning succeed or fail, as ambitions for self are transformed into ambitions for offspring. Reasonably adequate occupational and fertility histories can perhaps be obtained 10-20 years after marriage, but only a longitudinal design will yield the necessary information about motivations for fertility and fertility restriction.

APPENDIX

INTERPRETATIONS OF DIFFERENCES BETWEEN MOBILITY CATEGORIES

When the sample is classified by both occupational mobility and summary index of socio-economic status, rather highly differentiated

³⁸ For recent and current work in developing status classifications for studies of social mobility, see Glass, D. V.: *SOCIAL MOBILITY IN BRITAIN*, London, Kegan and Paul, 1954); International Sociological Association, First International Working Conference on Social Stratification and Social Mobility, Preliminary Papers and Proposals, August, 1951 (edited by Erik Rinde and Stein Rokkan, and distributed in mimeographed form by I.S.A.); . . . ; and papers presented at the Liège Congress of the International Sociological Association, 24 August-1 September, 1953, Section I, Social Stratification and Social Mobility, a summary of which appears in the *International Social Science Bulletin*, Winter, 1953, 5, No. 4.

groups emerge. The pattern of experiences for each group can be partially reconstructed by using data on age of husband at marriage, the pattern of family growth in the first four years of marriage, and statements of the size of family each spouse desired at the time of marriage. From these partial reconstructions, some plausible inferences can be made about the interrelations of fertility behavior with socio-economic background, personal abilities, and mobility aspiration in groups with varying patterns of social mobility. Even though several of the groups to be discussed are very small, so that they may be atypical and interpretations based on them are highly speculative, it is hoped this exercise has some value in helping to delimit the variety of mobile groups for future investigations.

In the analysis of these differentiated groups which follows, occupation of husband's father is taken as a rough index of social background, including knowledge and attitudes regarding contraception. SES is taken as a rough index of success in achieving economic comfort, of control over the environment. Age at marriage and pattern of family growth indicate something about determination to insure advancement via postponement of family obligations, or inability to postpone such obligations.³⁹ Number of children wanted at marriage is taken as evidence of motivation for fertility, but it may also, of course, be influenced by a need to rationalize acceptance of the current situation or by disappointment with it. It should be emphasized once more that these interpretations are only plausible, and that they are offered merely as leads for investigation in new studies.

Tables 29-33 present the data in the basic format which was shown schematically in Table 18, and Table 34 presents the averages and percentages for the whole sample, regardless of mobility or SES category.⁴⁰ Table 35 summarizes the discussion with a brief characterization of each group.

³⁹ In future studies, *e.g.* of marriages since 1940, the recent trend toward earlier marriage and family building may invalidate this interpretation of marriage age and family growth pattern. It seems likely, however, that aspiration for social mobility may be significantly related to differences of marriage age and family growth pattern within even these later generations.

⁴⁰ In the discussion which follows, figures are cited from Tables 29-33 without reference to the table number or section. The detailed tables are supplied mainly to enable the reader to check the interpretations offered and to make his own alternative interpretations. Any difficulty in following the somewhat condensed format will be minimized if each section is regarded as a separate table with the section heading serving as the subtitle.

Table 29. Success in fertility planning and family size by mobility categories and summary index of socio-economic status.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
ALL FAMILIES ² : AVERAGE NUMBER OF LIVING CHILDREN					
"Head" — All SES		(1)	(2)	(3)	(4)
	High SES	1.76	1.69	1.62	1.82
	Low SES	1.68	1.71	1.63	1.68
"Hand" — All SES		(5)	(6)	(7)	(8)
	High SES	1.95	1.97	2.12	2.31
	Low SES	1.46 ^a	1.72	1.82 ^a	1.72
SUCCESSFUL PLANNERS AS PER CENT OF ALL FAMILIES ²					
"Head" — All SES		50.4	65.4	49.8	39.1
	High SES	53.1	67.4	53.9	46.4
	Low SES	21.8	*	32.6	31.5
"Hand" — All SES		30.0	38.5	37.9	32.0
	High SES	45.5 ^a	53.5	58.8 ^a	39.0
	Low SES	*	31.0	29.3	29.6
PLANNED FAMILIES ³ :					
AVERAGE NUMBER OF LIVING CHILDREN					
"Head" — All SES		1.42	1.56	1.31	1.30
	High SES	1.45	1.60	1.35	1.11
	Low SES	*	*	1.06 ^a	1.59 ^a
"Hand" — All SES		*	1.24	1.64	1.53
	High SES	*	1.48	1.20 ^a	1.28
	Low SES	*	1.04	2.00 ^a	1.65
CHILDLESS COUPLES					
AS PER CENT OF SUCCESSFUL PLANNERS ³					
"Head" — All SES		20.7	11.8	27.0	23.3
	High SES	18.5	9.1	26.4	26.9
	Low SES	*	*	31.2 ^a	17.6 ^a
"Hand" — All SES		*	28.0	9.1	16.9
	High SES	*	21.7	20.0 ^a	23.9
	Low SES	*	33.3	0.0 ^a	13.7
PLANNED FAMILIES WITH CHILDREN ⁴ :					
AVERAGE NUMBER OF LIVING CHILDREN					
"Head" — All SES		1.79	1.77	1.79	1.70
	High SES	1.77	1.77	1.83	1.53 ^a
	Low SES	*	*	1.55 ^a	1.93 ^a
"Hand" — All SES		*	1.72	1.80	1.85
	High SES	*	1.89 ^a	1.67 ^a	1.69
	Low SES	*	1.55 ^a	2.00 ^a	1.91

* Averages and percentages not computed where base less than 10.

^a Based on 10-19 cases.

¹ This table repeats Tables 19-28, supplying figures for cells with 10-19 cases.

² For numbers of cases, see Tables 19 and 24.

³ For numbers of cases, see Tables 21 and 26.

⁴ For numbers of cases, see Tables 23 and 28.

The groups to be discussed are the eight mobility categories, and the sixteen groups resulting from their dichotomization on the summary index of socio-economic status. Figures are given for the combined SES groups mainly for reference and as a convenient clue to the general magnitude of differences when one cell has too few cases for computation of averages and percentages. The practice of presenting figures only when the base is 20 or more cases has been modified to allow as few as 10, but averages and percentages based on 10-19 cases are specially marked. Because of this modification of practice, and for convenience in making comparisons of Appendix tables, Table 29 simply repeats Tables 19-28, supplying the data on fertility planning, family size, and rate of childlessness for all cells with ten cases or more. Table 30 presents median age at marriage for husbands in all families and in planned families; also the percentages of husbands under 21 years and 25 years or older at marriage. Table 31 selects the two extremes of 0 live births and 2 or more live births in the first four years of marriage to characterize the early period of family growth for all families and for planned families. Tables 32 and 33 give the average number of children that wives and husbands, respectively, reported having wanted at marriage, and the percentages of all wives and husbands who reported they wanted to remain childless. To aid in keeping in mind which groups are being discussed, the eight mobility categories have been assigned numbers in the first section of Table 29 and references are given by group number.

Group 2. Of the upwardly mobile groups, the fifty-two husbands from white collar homes who were "temporarily" in "hand" work at the time of marriage and later moved up to "head" work appear to be a highly selected group. All except three are in the high SES group (*see* Table 24), and of these a very high proportion (67 per cent) successfully planned their fertility. These successful planners married young (median age 22.2 years), with 39 per cent married before reaching 21 years of age, compared to only 19 per cent for all successful planners in the sample. An exceptionally large proportion (27 per cent) of the successful planners had two or more children within four years of marriage, and a relatively small proportion (39 per cent) delayed more than four years before starting their families. They had an exceptionally low rate of planned childlessness (9 per cent) and the average size family planned with

Table 30. Husband's age at marriage by mobility categories and summary index of socio-economic status.¹

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
ALL FAMILIES ² : MEDIAN AGE					
"Head" — All SES High SES Low SES		23.9	22.3	24.0	22.0
		24.1	22.3	24.8	22.7
		23.2	*	22.1	21.4
"Hand" — All SES High SES Low SES		22.0	21.9	21.5	22.2
		25.8 ^a	22.3	20.9 ^a	22.9
		*	21.5	21.7	21.9
ALL FAMILIES ² : PER CENT UNDER 21 YEARS OF AGE					
"Head" — All SES High SES Low SES		14.2	34.6	20.2	31.8
		13.5	36.7	16.2	19.6
		21.7	*	36.7	44.4
"Hand" — All SES High SES Low SES		40.0	39.2	39.7	35.3
		27.3 ^a	20.9	52.9 ^a	27.1
		*	48.3	34.1	38.1
ALL FAMILIES ² : PER CENT 25 YEARS OF AGE AND OLDER					
"Head" — All SES High SES Low SES		35.8	7.7	43.5	19.1
		37.9	8.2	49.0	28.6
		13.0	*	20.4	9.3
"Hand" — All SES High SES Low SES		45.0	24.6	8.6	22.1
		72.7 ^a	20.9	17.7 ^a	28.0
		*	26.4	4.9	20.1
PLANNED FAMILIES ² : MEDIAN AGE					
"Head" — All SES High SES Low SES		23.7	22.2	25.3	22.4
		23.7	22.2	25.5	23.5
		*	*	23.2 ^a	21.5 ^a
"Hand" — All SES High SES Low SES		*	24.2	21.7	22.4
		*	23.2	21.5 ^a	23.6
		*	26.2	21.9 ^a	22.1
PLANNED FAMILIES ² : PER CENT UNDER 21 YEARS OF AGE					
"Head" — All SES High SES Low SES		12.6	38.2	10.3	25.6
		12.3	39.4	11.3	15.4
		*	*	6.2 ^a	41.2 ^a
"Hand" — All SES High SES Low SES		*	24.0	27.3	22.3
		*	17.4	40.0 ^a	17.4
		*	29.6	16.7 ^a	24.5
PLANNED FAMILIES ² : PER CENT 25 YEARS OF AGE AND OLDER					
"Head" — All SES High SES Low SES		37.1	5.9	54.0	18.6
		36.9	6.1	58.2	30.8
		*	*	25.0 ^a	0.0 ^a
"Hand" — All SES High SES Low SES		*	42.0	13.6	20.9
		*	30.4	10.0 ^a	37.0
		*	51.8	16.7 ^a	12.8

* Averages and percentages not computed where base less than 10.

^a Based on 10-19 cases.

¹ The sample was restricted to husbands under 40 years of age at marriage.

² For numbers of cases, see Tables 19 and 24.

³ For numbers of cases, see Tables 21 and 26.

Table 31. Pattern of family growth in first four years after marriage by mobility categories and summary index of socio-economic status.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
ALL FAMILIES ¹ : PER CENT WITH 0 LIVE BIRTHS					
"Head" — All SES		36.9	26.9	39.9	28.2
	High SES	38.8	26.5	41.6	28.6
	Low SES	17.4	*	32.6	27.8
"Hand" — All SES		30.0	25.4	27.6	21.9
	High SES	45.5 ^a	30.2	35.3 ^a	28.8
	Low SES	*	23.0	24.4	19.5
ALL FAMILIES ¹ : PER CENT WITH 2 OR MORE LIVE BIRTHS					
"Head" — All SES		15.7	26.9	15.0	15.5
	High SES	15.5	24.5	14.7	21.4
	Low SES	17.4	*	16.3	9.3
"Hand" — All SES		10.0	27.7	20.7	38.7
	High SES	0.0 ^a	20.9	11.8 ^a	25.4
	Low SES	*	31.0	24.4	43.4
PLANNED FAMILIES ² : PER CENT WITH 0 LIVE BIRTHS					
"Head" — All SES		55.5	41.2	56.4	58.1
	High SES	54.6	39.4	54.5	53.9
	Low SES	*	*	68.8 ^a	64.7 ^a
"Hand" — All SES		*	44.0	45.4	43.9
	High SES	*	47.8	60.0 ^a	52.2
	Low SES	*	40.7	33.3 ^a	40.2
PLANNED FAMILIES ² : PER CENT WITH 2 OR MORE LIVE BIRTHS					
"Head" — All SES		10.4	26.5	5.6	11.6
	High SES	10.8	27.3	5.5	15.4
	Low SES	*	*	6.2 ^a	5.9 ^a
"Hand" — All SES		*	6.0	4.5	12.8
	High SES	*	13.0	0.0 ^a	8.7
	Low SES	*	0.0	8.3 ^a	14.7

* Averages and percentages not computed where base less than 10.

^a Based on 10-19 cases.¹ For numbers of cases, see Tables 19 and 24.² For numbers of cases, see Tables 21 and 26.

Table 32. Average number of children wanted at marriage by wife, by mobility categories and summary index of socio-economic status.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
		WIVES IN ALL FAMILIES ¹			
"Head" — All SES High SES Low SES		2.42	2.28	2.34	2.12
		2.38	2.27	2.45	2.11
		2.78	*	1.85	2.13
"Hand" — All SES High SES Low SES		2.45	2.27	2.12	2.45
		2.18 ^a	2.37	2.12 ^a	2.19
		*	2.22	2.12	2.53
		WIVES IN PLANNED FAMILIES ²			
"Head" — All SES High SES Low SES		2.37	2.28	2.36	2.12
		2.31	2.26	2.48	2.09
		*	*	1.56 ^a	2.17 ^a
"Hand" — All SES High SES Low SES		*	2.30	1.77	2.29
		*	2.39	1.40 ^a	2.30
		*	2.22	2.08 ^a	2.29
		WIVES IN FAMILIES PLANNED WITH CHILDREN ³			
"Head" — All SES High SES Low SES		2.35	2.29	2.68	2.50
		2.35	2.29	2.79	2.75 ^a
		*	*	1.91 ^a	2.21 ^a
"Hand" — All SES High SES Low SES		*	2.55	1.85	2.47
		*	2.33 ^a	*	2.54
		*	2.78 ^a	2.08 ^a	2.44
		PER CENT OF ALL WIVES WHO WANTED NO CHILD ⁴			
"Head" — All SES High SES Low SES		5.2	6.5	6.1	10.3
		5.7	6.7	5.1	11.3
		0.0	*	10.6	9.3
"Hand" — All SES High SES Low SES		0.0	6.9	6.9	5.4
		0.0 ^a	9.3	17.7 ^a	11.9
		*	5.7	2.4	3.2

* Averages and percentages not computed where base less than 10.

^a Based on 10-19 cases.

¹ For numbers of cases, see Tables 19 and 24. Twenty of these wives, however, did not reply and are excluded from averages and percentages.

² For numbers of cases, see Tables 21 and 26. Seven wives of planned families did not reply and are excluded from computations.

³ For numbers of cases, see Tables 23 and 28. Five wives of families planned with children did not reply and are excluded from computations.

Table 33. Average number of children wanted at marriage by husband, by mobility categories and summary index of socio-economic status.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	SES LEVEL	OCCUPATION OF HUSBAND'S FATHER			
		"Head"		"Hand"	
		HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE			
		"Head"	"Hand"	"Head"	"Hand"
HUSBANDS IN ALL FAMILIES ¹					
"Head" — All SES High SES Low SES		2.19 2.17 2.34	1.98 1.98 *	2.15 2.18 2.00	2.17 2.03 2.31
	"Hand" — All SES High SES Low SES	1.58 ^a 1.00 ^a *	2.25 2.17 2.29	2.02 2.00 ^a 2.02	2.27 2.16 2.30
		HUSBANDS IN PLANNED FAMILIES ²			
"Head" — All SES High SES Low SES			2.33 2.31 *	1.91 1.91 *	2.17 2.20 2.00 ^a
	"Hand" — All SES High SES Low SES	* * *	2.24 2.17 2.29	1.86 1.80 ^a 1.92 ^a	2.04 1.98 2.07
		HUSBANDS IN FAMILIES PLANNED WITH CHILDREN ³			
"Head" — All SES High SES Low SES			2.43 2.41 *	1.90 1.90 *	2.49 2.53 2.27 ^a
	"Hand" — All SES High SES Low SES	* * *	2.50 2.22 ^a 2.78 ^a	1.95 * 1.92 ^a	2.12 1.86 2.18
		PER CENT OF ALL HUSBANDS WHO WANTED NO CHILD ¹			
"Head" — All SES High SES Low SES			9.7 8.9 17.4	5.8 6.1 *	6.6 7.2 4.1
	"Hand" — All SES High SES Low SES	42.1 ^a 63.6 ^a *	7.9 9.8 7.1	10.9 6.7 ^a 12.5	6.0 6.1 6.0

* Averages and percentages not computed where base less than 10.

^a Based on 10-19 cases.

¹ For numbers of cases, see Tables 19 and 24. Forty-four of these husbands, however, did not reply and are excluded from averages and percentages.

² For numbers of cases, see Tables 21 and 26. Nineteen husbands of planned families did not reply and are excluded from computations.

³ For numbers of cases, see Tables 23 and 28. Seventeen husbands of families planned with children did not reply and are excluded from computations.

children (1.77) was about the same as for all planned families with children (1.79). The wives are not distinguished from the average for all groups in their reports of size family desired at marriage, and husbands reported having desired fewer children than most of the other groups, so there is less discrepancy between their desired and achieved average family sizes than for most groups. The total impression is that this group was highly motivated for achievement, both economically and family-wise, and exceptionally able to control their lives for the realization of their plans. They controlled their fertility, but more by positive planning than by simple restriction. Nothing in the general hypotheses about social mobility pre-

Table 34. Success in fertility planning, family size, age of husband at marriage, pattern of family growth, and average number of children wanted at marriage, for all families and for planned families.¹

DESCRIPTION	ALL FAMILIES	PLANNED FAMILIES	PLANNED WITH CHILDREN
Success in Fertility Planning			
Number of Cases Reporting	1,353		
Per Cent Successful Planners	41.7		
Family Size			
Number of Cases Reporting	1,353	564	446
Average Number of Living Children	1.97	1.42	1.79
Per Cent Planned with 0 Children		20.9	
Husband's Age at Marriage			
Number of Cases Reporting	1,353	564	
Median Age at Marriage	22.8	23.2	
Per Cent Younger than 21 Years	28.6	19.3	
Per Cent 25 Years or Older	28.0	32.8	
Pattern of Family Growth in First 4 Years of Marriage			
Number of Cases Reporting	1,353	564	
Per Cent with 0 Live Births	29.6	52.3	
Per Cent with 2 or More Live Births	25.1	10.3	
Average Number of Children Wanted at Marriage by Wives			
Number of Cases Reporting	1,333	557	441
Average Number Wanted	2.36	2.29	2.45
Per Cent Who Wanted No Children	6.1		
Average Number of Children Wanted at Marriage by Husbands			
Number of Cases Reporting	1,309	545	429
Average Number Wanted	2.19	2.14	2.26
Per Cent Who Wanted No Children	7.9		

¹ Omitted: cases with occupation of husband's father not reported and cases with husband's 1940 occupation unemployed, unknown, or in agriculture.

dicted finding a group such as this, and it is, of course, only a small group. It may be that it is heavily weighted with sons of executives being trained for executive positions by temporary apprenticeship in manual jobs, or by men with the ability and financial resources from their background connections to set up in business for themselves after manual work apprenticeship. In any event, the pattern shown appears to be consistent with confidence, determination, and ability.⁴¹

The other upwardly mobile groups, coming from fathers in "hand" work, offer something of a contrast. Those upwardly mobile before marriage (Group 3) were predominantly (80 per cent) in the high SES group and resemble the nonmobile "head" workers (Group 1) in many respects. Those upwardly mobile after marriage (Group 4) were about half in the upper SES group, half in the lower group, and show a pattern quite different from that of either of the other upwardly mobile groups.

Group 3 Compared to Group 1. Those couples with husbands upwardly mobile before marriage (Group 3) resemble rather closely the nonmobile "head" workers (Group 1) in the very large proportion in the upper SES level (81 per cent and 91 per cent) and the high proportion of successful planners (54 per cent and 53 per cent) among those in the upper SES level. In both groups, upper SES husbands were somewhat older than average at marriage, although this is more pronounced among the upwardly mobile than among the nonmobile, and especially pronounced among successful planners in the upper SES level. (58 per cent of successful planners among the upwardly mobile high SES group were 25 years or older at marriage, as compared to 37 per cent among the nonmobile.) With respect to pattern of family growth, both groups are similarly distinguished in that a high proportion of all couples had no live births in the first four years of marriage.

However, within the upper SES level, while the upwardly mobile attained almost the same average family size as the nonmobile (1.63 and 1.68), they did so by balancing a higher rate of planned childlessness (26.4 per cent compared with 18.5 per cent) with larger average sizes for families planned with children (1.83 compared to 1.77) and for families unsuccessful in planning. The size of family

⁴¹ This group may be significant in showing at such an early date a marriage and family building pattern which is presumably much more common among couples married since 1945 than in the period 1927-1929.

desired at marriage reported by nonmobile couples at the upper SES level was about average, but both successful and unsuccessful planners among the upwardly mobile wives and successful planners with children among upwardly mobile husbands reported that at marriage they desired families of an average size considerably larger than that reported by any other group in the upper SES level. In short, while at the upper SES level the couples upwardly mobile before marriage resemble most closely the nonmobile white collar couples, they show some evidence of being selected for late marriage and restriction of fertility, especially in the first years of marriage. The large average size of families successfully planned with children suggests also some selection of persons determined to have children but willing and able to wait until their economic situation was favorable, *i.e.* whose aspirations included family building as well as, or as a part of, social advancement. The high proportion of planned childless couples appears to be consistent with this interpretation: their economic situation was judged not favorable enough or family building was postponed too long.

In contrast to the upper SES groups, the lower SES couples who were upwardly mobile before marriage seem quite different from the nonmobile white collar workers. There are too few cases for the comparisons to be very reliable. However, the nonmobile "head" workers (Group 1) in the lower SES group seem to be highly selected for initial lack of fertility control: the proportion of successful planners is very low (22 per cent), but most of the successful planners (4 out of 5) are childless; the average number of children (2.56) is the highest of any group; and the only families with no live births in the first four years of marriage remained childless. The facts that only four couples (17 per cent) had two or more live births in the first four years but a normal proportion (83 per cent) had at least one live birth, that the wives report having desired at marriage the largest average family size (2.78) of any group and none of them wanted to be childless, but that several of the husbands report they wished to be childless—these facts point to a pattern of marital disagreement, with possibly some deliberate failure in fertility control. The low SES may be due partly to the high fertility⁴², and partly to

⁴² High fertility would affect adversely the score on the Chapin living room scale, the purchase price of automobile, probably rental value of home, and net worth, *i.e.* 4 of the 8 components of the summary index of SES.

wives coming from a lower social background than their husbands.⁴³ However, these lower SES husbands have very little education for nonmobile "head" workers⁴⁴, which means that they came from relatively lower status (e.g. their fathers may have been minor tradesmen in rural areas) and/or that their lack of ability or some misfortune kept them from getting more education.

On the other hand, the lower SES couples who were upwardly mobile before marriage (Group 3), though not notably successful in their fertility planning (33 per cent), were as successful as any other lower SES group. The successful planners were highly concentrated (69 per cent) in the age group 21-24 years at marriage and postponed family building longer than any other group (69 per cent had no live births in the first four years of marriage). The more numerous unsuccessful planners, however, married very young (52 per cent before age 21) and only 15 per cent postponed the first birth for four years or more. Taken as a whole, therefore, the lower SES couples who were upwardly mobile before marriage married younger and began their family building earlier than the upper SES couples with the same mobility pattern. But their fertility was actually lower: among both successful and unsuccessful planners, the average number of living children was as small as, or smaller than, that for any other group. As to size family desired at marriage, only the husbands of successful planners with children reported having desired as many children as the average for the whole sample. The wives reported wanting the smallest average family size of any group. It is in this respect and their actual low fertility that the lower SES couples who were upwardly mobile before marriage (Group 3) show the strongest contrast both with the upper SES couples with the same mobility pattern and with the lower SES nonmobile "head" workers (Group 1). This suggests that they were selected from among those upwardly mobile before marriage who were less capable—less able to postpone marriage and initial fertility but trying desperately for control later, less confident of their ability and hence hedging their aspirations, less able to achieve economic prosperity along with their white collar

⁴³ Only 19 per cent of wives in the low SES group had fathers in white collar work, compared to 54 per cent of wives in the high SES group. And more of the former (29 per cent) than of the latter (16 per cent) came from farm homes.

⁴⁴ Over half of the lower SES men had only grade school education and only one went to college, compared to 1 per cent with only grade school education and 63 per cent with college education among the upper SES men.

status. They are also, of course, younger, more highly concentrated in the lower white collar occupations, came from lower status homes, and had less education⁴⁵ than the upper SES group, so that the differences in fertility aspiration and performance may be more a function of greater handicaps in the struggle for occupational advancement than a function of lesser ability.

Group 4. The husbands from "hand" work fathers who were upwardly mobile after marriage differ considerably from the other upwardly mobile groups. Their advancement was more likely the result of their own efforts, and they probably began from lower status homes and on the average did not achieve as high status. Both upper and lower SES level couples were only somewhat more successful planners than the nonmobile "hand" workers (Group 8), but their average size family was consistently smaller, and the rate of planned childlessness higher. The upper and lower SES levels within this mobility group, however, differ strikingly. The upper level husbands delayed marriage beyond age 20 somewhat more frequently than the total sample, but the lower SES husbands married younger than any other group, except one. With respect to pattern of family growth, the upper SES group of couples who were upwardly mobile after marriage had about the same record for the first four years of marriage as the upper SES group of nonmobile "hand" workers (Group 8), a record about average for the whole sample and intermediate between the delayed family building of the couples upwardly mobile before marriage (Group 3) and the nonmobile "head" workers (Group 1) and the early family building of the husbands "temporarily" in "hand" work at marriage (Group 2). By 12-15 years after marriage, however, the planned families in the group upwardly mobile after marriage (Group 4) were smaller than in any other upper SES group. In the lower SES group, about the usual proportion of couples postponed the first birth until after four or more years of marriage but an exceptionally large proportion postponed the second birth; nevertheless by 12-15 years after marriage, total fertility was as high as for all couples in the sample, and planned fertility higher than average. Both upper and lower SES level wives reported that at marriage they desired somewhat smaller families than the

⁴⁵ 55 per cent had fathers in semi-skilled or unskilled manual work or in service work, compared to only 21 per cent of men in the upper SES level. Only 10 per cent had any college education, compared to 44 per cent of men in the upper SES group.

average; the difference between them in fertility performance coincides with husbands' reports of desired family size. Upper SES husbands wanted smaller than average families, but lower SES husbands wanted larger than average families. The evidence generally points to a more taxing struggle for the upwardly mobile after marriage than for those upwardly mobile before marriage in the upper SES level; at the lower SES level, the upwardly mobile after marriage appear to be selected from those somewhat less oriented to status striving and more oriented to family building.

Group 5. The downwardly mobile groups similarly show rather divergent patterns. Those from "head" work fathers who were downwardly mobile after marriage are too few in number to permit anything but speculation about reasons for the differences between upper and lower SES levels. But the contrast is very sharp with respect to planning success, age of husband at marriage, pattern of family growth in the first four years after marriage, size family desired at marriage, and average family size. It looks as if the high SES couples married late and controlled fertility fairly well, with family building being delayed and restricted by the husbands' demands and by the difficulties of maintaining a white collar standard of living on manual work income. The low SES couples, on the other hand, married early and experienced early and continued failures in fertility control. The only couple successful in fertility planning at the lower SES level was childless.

Group 6. Men from "head" work fathers who were downwardly mobile before marriage fall mostly (2/3) in the lower SES level. Over half of those in the upper SES level were successful planners, not particularly distinguished by age at marriage, pattern of family growth, desired family size, or rate of childlessness (22 per cent), but with the largest average size family planned with children of any group in the upper SES level. Evidently this is a heterogeneous group, including some couples sharply restricting their fertility and some planning relatively large families, the former perhaps compensating for their downward shift of status, the latter less interested in status striving than in family building.

The more numerous lower SES couples who were downwardly mobile before marriage were mainly unsuccessful planners who had married early (median age 20.7 years) and began family building early (45 per cent had two or more live births within four years of

marriage). The few successful planners married late (median age 26.2 years) and delayed family building (41 per cent had no births and none had two or more births within four years of marriage). Reports of family size desired at marriage were about average, except that successful planners with children, both husbands and wives, wanted 2.78 children on the average, the second largest average for desired family size. Since the actual size family planned with children is one of the smallest and the rate of planned childlessness high, the discrepancy between desired and actual family size is especially large. This group appears to be heavily weighted with couples whose early failure in fertility control influenced their economic status, and those whose age or economic difficulties caused them to change their minds about the size family they wanted.

Group 7. The fifty-eight cases of husbands from "hand" work fathers who "temporarily" were in "head" work at the time of marriage are mainly (3/4) in the lower SES level. Of the seventeen in the upper SES level, ten are successful planners who married early (median 21.5 years) but postponed childbearing (60 per cent of successful planners of high SES had 0 live births in the first four years). They are distinguished in having the largest proportion of wives who reported that at marriage they wished to remain childless (17.7 per cent) and the smallest desired family size reported by wives who were successful planners (1.40). Their actual fertility (1.82) for all families is the highest in the upper SES level, but their planned fertility (1.20) is among the lowest. The couples in the low SES level were mostly (71 per cent) unsuccessful in fertility planning and not particularly distinguished in any way. The few successful planners, however, had the largest average size planned family (2.00) of any group and no deliberately childless couples, and this fertility performance matched very closely what they reported desiring at marriage.

Group 8. Group 8, consisting of 462 nonmobile "hand" workers, is the largest of all. Of this group, only one-fourth are in the upper SES level, and these had married later, were somewhat more successful in planning, and both successful and unsuccessful planners had postponed their childbearing longer and restricted their fertility more than the lower SES nonmobile "hand" workers. Their lower fertility is probably both cause and result of their better economic position. It is worth noting, also, that the upper SES level non-

Table 35. Summary of suggested interpretations for groups differentiated by occupational mobility and SES level.

HUSBAND'S 1940 OCCUPATIONAL LEVEL	OCCUPATION OF HUSBAND'S FATHER			
	"Head"		"Hand"	
	HUSBAND'S FIRST OCCUPATION AFTER MARRIAGE		"Hand"	
"Head": High SES	"Head"	"Head"	"Head"	"Hand"
	Nonmobile "Head" Workers (90 Per Cent) Controlled, Moderate Fertility	Upwardly Mobile: "Temporarily" in "Hand" Work at Marriage (94 Per Cent) High Aspiration for Status and Family Building; Exceptionally Capable of Successful Endeavor. Possibly Family a Spur to Achievement	Upwardly Mobile Before Marriage (80 Per Cent) Most Like Nonmobile "Head" Workers. Selection of Persons Willing and Able to Postpone Marriage and Childbearing, but With Aspirations Including Family Building under Favorable Economic Conditions	Upwardly Mobile After Marriage (50 Per Cent) Mobility by Own Efforts More Taxing than Mobility Before Marriage; More Highly Selective of Couples With Aspiration for Status Improvement Supported by Low Fertility
Low SES	"Head"	"Head"	"Head"	"Hand"
	Nonmobile "Head" Workers (10 Per Cent) Highly Selected for Initial Failure in Fertility Control; May Be Forced Marriages with Wives of Lower Status; Low SES Both Cause and Result of High Fertility	Upwardly Mobile: Temporarily in "Hand" Work at Marriage (Only 3 Cases)	Upwardly Mobile Before Marriage (20 Per Cent) Younger at Marriage. Selection of Those Less Capable of Economic Advance and Fertility Control; Strong Aspiration, but less Confidence and Ability. So Restrict Aspiration for Family Building; Probably Lower Initial Status	Upwardly Mobile After Marriage (50 Per Cent) Mobility of Lesser Degree; Orientation More Toward Family Building Than Status Striving
"Hand": High SES	"Head"	"Head"	"Head"	"Hand"
	Downwardly Mobile After Marriage (Very Few) Moderate Success in Fertility Planning After Late Marriage; Severe Fertility Restriction to Avoid Reduction in Standard of Living	Downwardly Mobile Before Marriage. Heterogeneous: (33 Per Cent) Some Remain Childless or Restrict Fertility As Much As Possible to Avoid Reduction of Living Standards. Some Not Interested in Status Striving or Compensate for Downward Mobility by Planning Relatively Large Families	Downwardly Mobile: Temporarily in "Head" Work at Marriage. (30 Per Cent, but Very Few) Successful Planners. Married Early. Planned Severe Fertility Restriction, but Those Who Failed in Control Have High Fertility	Nonmobile "Hand" Workers (25 Per Cent) Relatively Low Fertility Both Cause and Result of Relatively Good Economic Position
Low SES	"Head"	"Head"	"Head"	"Hand"
	Downwardly Mobile After Marriage (Very Few) Early Marriage; Early and Continued Failure of Fertility Control	Downwardly Mobile Before Marriage (67 Per Cent) Few Successful Planners Married Late; Average Family Size Less Than Half The Size Wanted at Marriage; Age and/or Economic Difficulties Probably Responsible. Majority: Early Marriage and Failure to Control Fertility May Have Influenced Economic Status	Downwardly Mobile: "Temporarily" in "Head" Work at Marriage (70 Per Cent) Very Few Successful Planners, But Had Largest Average Size Planned Families and No Childlessness. Majority Like Nonmobile "Hand" Workers in Most Respects	Nonmobile "Hand" Workers (75 Per Cent) Low Planning Success, but Even Planned Fertility Among Highest in Sample. No Evidence of Effective Status Striving

mobile "hand" workers planned smaller families and had a higher rate of planned childlessness than the nonmobile "head" workers.

Interpretations of the differences between the several mobility-SES groups are summarized in Table 35.

ANNOTATIONS

EVOLUTION OF THE DOCTOR-PATIENT RELATIONSHIP¹

THE "inviolability of the doctor-patient relationship" is currently being discussed and commented upon at length by both professional and lay people. This sudden interest in a relationship which has been taken for granted for centuries, is a phenomenon, the causes of which are investigated in an article entitled "Evolution of the Doctor-Patient Relationship." The following review is a brief summarization of the views set forth by the author.

In the early nineteen hundreds, there were two quite different types of doctor-patient relationships. On the one hand, there was the relationship the doctor established with his private patients and on the other, with his charity patients. While the doctor tended to be rather possessive with his private patients, the charity patients were regarded primarily as good sources for teaching purposes. Their diseases interested the doctor, they themselves did not. Although this attitude is still present today, it prevails to a lesser degree than formerly.

One of the most outstanding developments in the evolution of the doctor-patient relationship has been the acceptance, on the part of doctors, of the concept that mind and body are one. This has resulted in a growing realization of the significance of the patient's personality. The patient has psychological as well as physiologic problems and doctors must now be equipped to understand the destructive effect upon emotional stability of the impact of serious diseases, or conversely, the importance

¹ Means, J. H.: Evolution of the Doctor-Patient Relationship. *Bulletin of the New York Academy of Medicine*, September, 1953, 29, No. 9, pp. 725-732.

of the patient's emotions in the production of his illness. With such understanding, the doctor is able to treat his patient as a whole person and is more aware of the meaning of illness to the patient and his family.

Besides the psychological, there have been developments in the doctor-patient relationship in the social and economic fields. The self-sufficient general practitioner of old is gone and the only way modern medical care can be provided is by a multiplicity of skills. Under such circumstances a very real problem is created. How can the doctor's intimate and responsible relationship to his patient be maintained? The author believes that patients must be cared for by teams of doctors rather than solely by individual doctors. Within the team, if one physician is in command and is also responsible for integrating the entire effort, the author feels that an adequate doctor-patient relationship can be retained.

Means then discusses the manner in which a doctor is paid for his services and how this affects the doctor-patient relationship. While the patient is a proper problem for the doctor, the doctor must never become a problem to his patient. The fee-for-service method of payment produces anxiety in many patients as to their ability to pay the doctor, and thus introduces an emotional and often highly disruptive factor into the doctor-patient relationship. For this reason, the author believes that the fee-for-service method should be supplanted by an arrangement in which the patient prepays for complete medical and hospital care and the physician is paid by salary. However, the best medical-practice situation will be one which satisfies both patient and doctor. When there are differences between them they should be resolved by concessions on the part of the physician, for the patient's best interest must come first.

The evolution of the doctor-patient relationship will continue until every person can obtain medical care of the highest quality, in a manner which will impose no hardship upon him or his family. The passage from Plato's Republic quoted by the author defines the situation quite succinctly: "No physician, in so far as he is a physician, considers his own good in what he prescribes, but the good of his patient; for the true

physician is also a ruler having the human body as subject, and is not a mere money-maker."

KATHERINE SIMON

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THE FAMILY AS A UNIT IN PUBLIC HEALTH RESEARCH¹

ACCORDING to the article "The Family as a Unit in Public Health Research" by Margaret Merrell, classification and analysis on a family unit basis is necessary to gain a clear picture of the public health problems relating to families. The concept of the family unit depends on the nature of the study. To the sociologist, a family would include the members sharing board and a common dwelling unit either with or without regard to relationship, while to the geneticist, it may consist of certain blood relations, living and dead, regardless of place of abode.

The interpretation of family studies is influenced by whether the place of emphasis is upon the individual or the family. Individual members may be used as a basis of classification provided the family as a unit is kept intact.

Two illustrations are presented by Dr. Merrell in which the family is the real unit of study. In an analysis of the secondary attack rate in infectious disease, all members of the families of primary cases are pooled to determine age specific attack rates which are then compared with a group of control families. The study of measles and scarlet fever in Providence, R. I. in 1939 by E. B. Wilson and his associates utilized this method of analysis. Classification of married couples as to certain characteristics such as age and economic status when they became parents has also been used in studies of differential fertility. A cross tabulation of the combined information on both parents presents a more complete picture than charting the characteristics of the parents separately. Thus although the young wives have higher birth rates than older wives, these rates vary with the age of the husband. In the Indianapolis study

¹ Merrell, Margaret: The Family as a Unit in Public Health Research. *Human Biology*, February, 1952, 24, No. 1, 11 pps.

on the Social and Psychological Factors Affecting Fertility, C. V. Kiser and P. K. Whelpton showed how fertility planning by the parents and socio-economic status of the family affected fertility rates.

Attempts have been made to study public health problems on a family unit basis. Lowell J. Reed developed a family life table in a study of the effect of a chronic disease on the family. The Maryland Blue Cross has selected hospitalization-prone families in order to determine their characteristics. In the Eastern Health District of Baltimore several attempts have been made to determine various family characteristics of stable and non-stable families.

The author stresses the importance in family studies of placing the emphasis on the family rather than on the individual family members. This appreciation of the family as a unit has been neglected in the past.

MARGUERITE KELLER

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ENRICHING THE YEARS¹

IN 1947 a committee was set up by the New York State Legislature under the chairmanship of Senator Thomas C. Desmond, to study the conditions and problems of the aged and "... to turn the years of discard into a rich, fitting climax to years of living." For five years, the New York State Joint Legislative Committee on Problems of the Aging, has worked to obtain a better understanding of the senior citizens of our society. The findings and recommendations of this Committee are presented in the monograph *ENRICHING THE YEARS*. The monograph also contains articles on nutrition, health, chronic disease, rehabilitation, housing, education, employment, pension plans, and industry as they relate to the older person.

In New York State in 1950, 8.5 per cent of the population was 65 years of age and over. It is estimated that the State has now approximately 1,400,000 persons in that age category plus

¹ *ENRICHING THE YEARS*. New York State Joint Legislative Committee on Problems of the Aging. Legislative Document, No. 32, 1953, 199 pp.

an additional 5,000,000 men and women in the 45 and over age group. From 1940 to 1950, in New York State the increase in females 65 years and over was 53 per cent, the corresponding figure for males was 23.3 per cent.

America is a country that esteems and glorifies youth. Because ours is a youth-worshipping culture, human worth and value decline with the passing years. The aged in our society are thrust aside in the community, in the family, and in industry, until they attain their final status in life—the status of second-class citizens. It will require all the skills of the social psychologists and the sociologists to rid the elderly of the cruel prejudices held against them by a youth-oriented culture. If the later years are to be filled with a sense of achievement, usefulness, satisfaction, and self-esteem, it is essential that people's attitudes and stereotyped ideas toward the aged are changed.

In an effort to remedy the plight of the elderly, the Committee has initiated community programs for the aged throughout New York State. Local community leaders were trained by staff advisers to understand and work with older people. One of the most deeply-rooted beliefs that the Committee found was the wide-spread notion that human beings automatically become old and unfit to work when they reach the age of 65. That this notion is not only unscientific but also socially harmful is apparent when individual differences and variations in the aging process are taken into consideration.

Regarding the employment of older workers, the Committee believes that an educational campaign is necessary to eliminate the prejudices held by management and unions against the hiring of the elderly. "There is nothing inherent in our system of free enterprise which makes it impossible, unprofitable or unwise to hire and utilize older workers." Rather, it is industry's ignorance concerning the proper utilization of older workers that is barring them from employment. By shunting aside this segment of the population, industry is losing the skills, experience, mature judgement, loyalty, and dependability that these senior citizens have to offer. The skills of job engineers should be applied to the task of altering jobs to suit the physical capacities of the middle-aged and older worker. Establishment of retraining centers, job counselling and placement

services, are other measures that could assist the older person who is trying to reenter the labor market.

Some Committee recommendations for an economically secure old age are as follows: Extend OASI to the entire working population; inflexible use of 65 as the fixed age for retirement must be abolished; the law which prohibits persons receiving OASI from earning more than \$75 a month should be changed as it penalizes the older person who wishes to continue working. Private pension plans are felt to be of doubtful value for they provide economic security to a very small proportion of the population. Few workers are employed for 10-25 years by a single employer and thus, upon reaching age 65, they are not eligible for pensions.

The cruel neglect and the utter despair of lonely old men and women is described vividly in a section of the Committee's report dealing with the destitute aged on Old Age Assistance rolls. Contrary to popular belief persons on OAA rosters are not predominately Negro or foreign-born. The majority are native-born Americans who had always worked diligently, but being unskilled and lacking education, received low wages throughout their working careers. Medical ailments or physical impairments are the rule among the destitute aged and in the New York State community studied by the Committee, 90 per cent of the persons on OAA rolls had multiple ailments. The average OAA recipient lives on approximately \$1.50 a day for food, rent, clothing, light, heat, and medicine. This study clearly shows the need for providing the poverty-stricken elderly with greater economic support, rehabilitation facilities, training and retraining centers, educational programs, and sheltered workshops.

The remainder of the monograph consists of articles on various subjects relating to older people. Albert J. Abrams, the Director of the Committee, has contributed several valuable articles. "A Community and Chronic Disease," by Dr. Morton L. Levin, "Rehabilitation in the Allegheny County Home," by Dr. Murray B. Ferderber, "Mental Hygiene and the Aged," by Dr. George S. Stevenson, and "A Personal Look at Old Age," by J. C. Penney, are just a few of the excellent articles included in this comprehensive monograph.

The New York State Joint Legislative Committee on Problems of the Aging has fostered community programs, housing, counselling and job placement for the aged. In view of the fact that ours is an aging population, it is of utmost importance that the Committee continue its work, for the time has come "... to prove the potentials of the later years, and the value of age."

KATHERINE SIMON

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MALTHUS TWICE AGAIN¹

THAT two separate books on Malthus were published in London in 1953 is only an example of the current resurgence of interest in Malthus. Much of the renewed interest has been aroused by the controversies over the outlook for world population and resources. These controversies, in turn, have been augmented, if not frequently started, by the postwar activities in the underdeveloped areas of the world.

Dr. George F. McCleary's book *THE MALTHUSIAN POPULATION THEORY* provides for the layman a good nontechnical description of the "Theory"; it is full of human interest materials on Malthus and some of his ancestors and contemporaries.

However, McCleary's is not simply a "popular" book. The author has studied Malthus's writings with much care. In the reviewer's opinion, he makes a distinct contribution in the chapter entitled "Malthus and Contraception" in which he marshals the evidence that Malthus knew about contraception and strongly disapproved of it. In the chapter "Mistakes About Malthus" McCleary points out that some held that Malthus advocated contraception and others that he was ignorant of it. Other "mistakes" listed by McCleary are "that the ultimate object of his work was to check population increase" (p. 95), "that Malthus recommended war, disease, and famine as remedies for over-population" (p. 96), "that population actually increases in a geometrical ratio" (p. 98).

¹ McCleary, G. F.: *THE MALTHUSIAN POPULATION THEORY*. London, Faber & Faber, Ltd., 1953, 191 pp. 15s.

Glass, D. V. (Ed.): *INTRODUCTION TO MALTHUS*. London, Watts & Company, 1953, 205 pp. 10s 6d. (New York, John Wiley & Sons, Inc., 1953, 205 pp. \$2.75.)

McCleary's own appraisal of Malthus is summarized as follows:

It seems that most students of population would agree that the central Malthusian position has survived its hundred and fifty years of hostile criticism and still stands. Malthus held that since it is easier for man to produce children than to produce subsistence, population constantly tends to outrun subsistence but is restrained by a variety of checks, all of which may be divided into (1) positive, which tend to raise the death-rate, and (2) preventive, which tend to reduce the birth-rate. He also held that the positive checks become less prevalent, and the preventive more prevalent, with the advance of Western civilization; that an unchecked population would double itself every twenty-five years; that it is necessary that population increase should be restrained; and that the positive checks should as far as possible be eliminated, and the 'requisite population of any country' be reared 'from the smallest number of births.' On these basic propositions there seems to be agreement among most instructed critics that he was right. (page 157)

INTRODUCTION TO MALTHUS, edited by Professor D. V. Glass, is a good companion volume to McCleary's book. This, too, is a nontechnical book but of an altogether different type. It consists of three papers *about* Malthus, two *by* Malthus, and a classified bibliography of important writings on population and the Malthusian controversy during the period 1793-1880.

The three papers about Malthus are H. L. Beales: "The Historical Context of the Essay on Population"; D. V. Glass: "Malthus and the Limitation of Population Growth"; and Alan T. Peacock: "Malthus in the Twentieth Century."

Glass' appraisal of Malthus is considerably less defensive than is that of McCleary. "However sincerely Malthus professed to further the interests of the labourer, the denial of poor relief and the refusal to acknowledge contraception as a relevant means of population control must today appear curiously inhuman. Moreover, for a man who put forward a comprehensive theory of economic and social development, Malthus's view of the factors influencing social change was

curiously narrow. As a result, a useful short-run analysis of the relation between population and economic progress was elevated into a law of doubtful validity." (page ix)

The two books on population should be of value not only to students of population but also those interested in the demographic aspects of modernization of underdeveloped areas.

CLYDE V. KISER

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ECONOMIC DEVELOPMENT AND POPULATION GROWTH IN RHODE ISLAND¹

IN this booklet, Kurt B. Mayer "attempts to trace in brief outline the growth of Rhode Island's population from its inception and to relate it to the processes of economic development characteristic of this area."

Primarily an agricultural community when first colonized in 1636, Rhode Island subsequently became a maritime and commercial community and finally an industrial state.

Settled by those persecuted in the Massachusetts colonies, most colonists were dependent upon subsistence farming. However, early could be seen not only division of labor—the blacksmith, the shoemaker, etc.—but also the beginnings of foreign commerce and shipbuilding, which formed the basis of the colony's wealth during the eighteenth century. Newport became the leader in New England commerce as well as the center of the American slave trade. Subsidiary to maritime commerce, but developing as a result of it, were distillers to convert imported molasses to rum, manufacturing concerns to produce sail cloth and cordage, and iron works. Livestock farming on large plantations was initiated.

The population of Rhode Island increased rapidly during the colonial period. It increased from the 7,181 persons in 1708 to 59,678 in 1774. Diverse social strata could be observed on the eve of the Revolution: the wealthy commercial and mercantile class and the landed aristocracy, the poor self-sufficient farmers, the colored slaves, and indentured servants. Popula-

¹ Mayer, Kurt B.: *ECONOMIC DEVELOPMENT AND POPULATION GROWTH IN RHODE ISLAND*. Providence, Brown University, 1953, 70 pp., \$2.25.

tion growth declined after the Revolutionary War with the decline of Newport and the State as a whole. With peace, prosperity was restored and population growth resumed. Providence experienced a shipbuilding boom, but the declining commercial enterprises were unable to absorb the surplus agricultural population and out-migration began from the rural areas of Rhode Island, as from other New England States.

With the rise of manufacturing in the nineteenth century—particularly the cotton and woolen industries—population growth resumed and urbanization began. Readily available labor and capital and cheap water power fostered the textile industry which, in turn, gave stimulus to the iron works that had started earlier. The jewelry industry, today one of the State's major concerns, began early in the nineteenth century.

From about 1820 until 1910 the history of Rhode Island's prosperity can be seen in the expansion, consolidation, and technological advance of existing industries—particularly in the cotton and woolen industries, the jewelry and silverware industry, the metal and machinery trades, and in the beginnings of other related industries—the manufacture of rubber goods, chemical plants, the dyeing and finishing of textiles, hosiery and knit goods concerns, and in the manufacture of silk. Although primarily an agricultural State—subsistence farming had been replaced by crop specialization as a result of increased Western competition and the rural exodus—urbanization increased as did industrialization. Population increases—from 83,059 in 1820 to 542,610 in 1910—were the result of natural increase, in-migration from other states and, since about 1850, immigration from abroad also. The rate of increase for each ten-year period from 1820 to 1910 varied from 8.0 per cent to 35.6 per cent. As Kurt B. Mayer says, "The year 1910 marks a turning point in the demographic history of Rhode Island, bringing to a close what might be called its Golden Age." (p. 53.)

During the next thirty years, the over-all industrial and demographic picture of Rhode Island changed. The cotton industry, due to Southern competition, had gradually declined although there were a few years of prosperity attributable to the war booms; other branches of the textile industry were not

as adversely affected. The jewelry industry remained constant; the metal and machinery trades declined. Labor turned to the tertiary industries, to the trades, and to the services for employment. The rate of population growth reached a low of only 3.8 per cent for the 1930-1940 decade as a result of immigration restrictions, and a falling birth rate. However, during 1940-1950 the birth rate rose, as it did in the country as a whole, and Rhode Island's population increased 11.0 per cent.

In his general summary, Mayer states, "Employment opportunities have not expanded at the same rate as has population growth. . . . This lag between the rate of employment expansion and the rate of population growth spells potential trouble; it is the crux of the State's present problems. (p. 69.) . . . However, . . . what is needed now is not further industrialization but a diversion of resources into different types of industries and an adaptation of existing manufacturing industries to new products and new technologies." (p. 70.)

LILA M. FISCH



BOOKS

A Collection of Papers with the Milbank Memorial Fund

PROGRESS OF THE ART OF HUMAN FERTILITY IN AGRIAN SOCIETIES. 1951 Annual Conference of the Milbank Memorial Fund. 1952. 175 pp. \$1.00.

BACKGROUND OF THE MILBANK MEMORIAL FUND. 1947 Annual Conference of the Milbank Memorial Fund. 1948. 104 pages. \$1.00.

PROGRESS OF MEDICAL SCIENCE AND HUMAN FERTILITY. Proceedings of the Round Table on Medical Science and Human Fertility. 1950 Annual Conference of the Milbank Memorial Fund. New York: R. Hoeber, Inc., 1952. 720 pages, 218 illustrations. \$1.00.

CONCEPTS OF HUMAN FERTILITY. Study of Organization and Planning. By V. H. Hirsch. 1954. 120 pages. \$1.00.

CONCEPTS OF HUMAN FERTILITY. 1949 Annual Conference of the Milbank Memorial Fund. 1950. 104 pages. \$1.00.

THE FAMILY AS A FACTOR IN HUMAN FERTILITY. 1948 Annual Conference of the Milbank Memorial Fund. 1949. 104 pages. \$0.50.

RELATIONS BETWEEN THE SOCIAL ENVIRONMENT AND PSYCHIATRIC DISORDERS. 1952 Annual Conference of the Milbank Memorial Fund. 1953. 268 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. 1949 Annual Conference of the Milbank Memorial Fund. 1950. 154 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. By V. H. Hirsch. Lancaster, Pennsylvania, The Science Press Printing Company. 1952. 212 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. 1949 Annual Conference of the Milbank Memorial Fund. 1950. 154 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. Proceedings of the Section on Human Fertility at the World's Sixteenth Annual Conference. Milbank Memorial Fund. 1952. 200 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. 1949 Annual Conference of the Milbank Memorial Fund. 1950. 154 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. 1949 Annual Conference of the Milbank Memorial Fund. 1950. 154 pages. \$1.00.

CONTRIBUTION OF HUMAN FERTILITY TO HUMAN RESOURCES AND POPULATION GROWTH. Volumes II and III. 1952. 284 pages. \$1.00 each.

